

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of: Jacobus

Serial No.: 09/785,385

Group No.: 2152

Filed: Feb. 16, 2001

Examiner: D. Changkong

For: DISTRIBUTED COMPUTING ENVIRONMENT

**APPELLANT'S APPEAL BRIEF UNDER 37 CFR §41.37**

Mail Stop Appeal Brief  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**I. Real Party in Interest**

The real party in interest in this case is Cybernet Systems Corporation, by assignment.

**II. Related Appeals and Interferences**

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. Status of Claims**

The present application was filed with 23 claims. Claims 1-23 are pending, rejected and under appeal. Claims 1 and 11 are the independent claims.

**IV. Status of Amendments**

No after-final amendment has been filed.

**V. Summary of Claimed Subject Matter**

Independent claim 1 is directed to a distributed network computing environment. The environment includes a plurality of clients communicating within a multicast cloud distributed network

using content-specific data within messages to implement data routing and message culling in a groupware application; and one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message. (Specification, page 8, line 17 to page 10, line 2).

Independent claim 11 is directed to a distributed network computing environment comprising a network-enabled client application. At least one lobby manager facilitates communications between the client application and a “federation.” One or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message to reduce the communications with the federation (Specification, page 8, line 17 to page 10, line 2).

## **VI. Grounds of Rejection To Be Reviewed On Appeal**

A. The rejection of claims 1, 3, 4, 6-8, 10, 11, 14-20, 22 and 23 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,611,872 to McCanne.

B. The rejection of claim 11 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,611,872 to McCanne.

C. The rejection of claims 2, 12 and 13 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,611,872 to McCanne in view of U.S. Patent No. 6,015,348 to Lambright *et al.*.

D. The rejection of claims 5 and 21 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,611,872 to McCanne in view of U.S. Patent No. 6,463,078 to Engstrom *et al.*

E. The rejection of claims 9 and 19 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,611,872 to McCanne in view of U.S. Patent No. 6,185,062 to Bayrakeri.

## **VII. Argument**

### A. The Rejection of Claims 1, 3, 4, 6-8, 10, 14-20, 22 and 23.

Appellant’s claim 1 includes the limitation of “one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message *based upon the content of the message.*” (Emphasis added). So the question boils down to whether McCanne discloses content-based routing. Based upon the following arguments in

rebuttal of the Examiner's position, Appellants contend that McCanne *does not* teach or suggest routing based upon the content of the message.

By way of review, in a previous decision (Appeal No. 2009-000997, submitted herewith as evidence), the Board "read the instant claims as requiring *specific data content in a message* to trigger content-based routing. According to Appellant's unequivocal interpretation, the mere *type* of content (e.g., audio or video) would be insufficient to trigger the claimed content-based routing." (See Board Decision, middle of page 10, emphasis in original). Appellant will analyze the Final Rejections, taking each of the Examiner's argument in turn.

On page 3 of the Final OA, the Examiner notes that McCanne is directed to providing "application-level control to be applied to transferred data." This is true. However, the control *is applied to the data*. In the case of Appellant, essentially the opposite is true: rather than application-level control being applied to transferred data, the transferred data itself (*i.e.*, the content), *is applied to the control*.

Appellant disagrees with the Examiner's argument that "[o]ne of ordinary skill in the art would clearly understand that 'application-level control' entails looking at the content of the message." But even if this were the case, it doesn't require *specific data content in a message* to trigger content-based routing, as set forth in the previous Board decision.

The Examiner states that "McCanne discloses that '[t]he sender sends control information indicating the overlay group that is to be used and *application-level information that describes the contents of the transmission*'" (Emphasis added by the Examiner, citing 11:60-63 of McCanne). However, again, simply sending information does not mean that the content of a message somehow determines where that message will end up.

McCanne does not "provide other examples of application-level routing by looking at the content of a message." (Final OA, toward the bottom of page 2). The Examiner points to 6:60-62 of McCanne, which states that "the Packets are dropped by the overlay network if the setup mint is not present, including the time during which the setup mint is in transit." According to the Examiner, a "setup mint" refers to identifier *within a database that is carried within the packet*," citing 6:37-44 of McCanne. (Emphasis Added). The Examiner is incorrect on this point. The relevant passage of McCanne reads as follows:

“Using MINT, senders can attach named values to an overlay multicast group which is published into and across the overlay network, allowing other group members as well as network entities to query this “database” of state. Each tuple in the database, called a “mint”, is identified by its owner (the OMN sender) and name (and implicitly the group).”

As the Board will see, McCanne *does not disclose* a database “that is carried within the packet,” as suggested by the Examiner. Rather, the setup mint is published into and across the overlay network *as a separate database* to be queried by other group members and network entities. If the database was carried within a packet, clearly it would not be so freely accessible. This example of McCanne does not teach that packets are inhibited from being distributed because they lack certain identifier within the packet itself (Final OA, top of page 3).

“As another example,” the Examiner points to 19:51-59 of McCanne, which discusses transit addresses. According to the Examiner, “[b]ecause the application-level information is stored in a packet, it is properly interpreted as ‘content’ of the message.” Appellant respectfully disagrees. Just as the previous Board confirmed that the mere *type* of content (e.g., audio or video) would be insufficient to trigger the claimed content-based routing, *a peer’s IP address is not content*. Here the Examiner is confusing the address on a letter with the contents inside the envelope.

Anticipation may be established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. *RCA Corp. v. Applied Digital Data Systems*, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). Moreover, anticipation requires the presence of all elements of a claimed invention as arranged in the claim, such that a disclosure “that ‘almost’ meets that standard does not ‘anticipate’.” *Connell v. Sears, Roebuck Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983). Since, in this case, McCanne neither teaches nor suggests all of the limitations of Appellant’s independent claims, *prima facie* anticipation has not been established.

#### B. The Rejection of Claim 11

As to claim 11, Appellant respectfully disagrees that McCanne’s “designated router” reads on a lobby manager. Appellant’s claim 11 defines a lobby manager as facilitating communications between the client application and a federation. Such a disclosure is not exclusively stated in the McCanne

reference. Further, claim 11 also includes a limitation of one or more network routing modules or router-embedded applets operative to permit or inhibit distribution based upon content. Again, for the reasons set forth hereinabove, it is Appellant's position that McCanne neither teaches nor suggests such a capability.

C. The Rejection of Claims 2, 12 and 13.

Claims 2, 12 and 13 stand rejected under 35 U.S.C. §103(a) over McCanne in view of Lambright *et al.* Apart from the failure of McCanne to disclose content-based routing, Appellant takes issue with the Examiner's *rationale* for combining the references—that the proposed combination would "make sense" because it would allow McCanne to be used for a "different purpose." However the mere fact that the purpose is "different" teaches away from *prima facie* obviousness. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991) The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

D. The Rejection of Claims 5 and 21

Claims 5 and 21 stand rejected under 35 U.S.C. §103(a) over McCanne in view of Engstrom *et al.* Apart from the failure of McCanne to disclose content-based routing, the Examiner presents no evidence as to why or how the teachings of Engstrom *et al.* would "improve" McCanne, even though the Examiner implies that such an improvement would occur in the "same way."

To reject a claim under MPEP 2143, as the Examiner has done in this case, the Examiner *must* resolve the *Graham* factual inquiries, then *must* articulate the following:

- (1) a finding that the prior art contained a "base" device (method, or product) upon which the claimed invention can be seen as an "improvement;"
- (2) a finding that the prior art contained a "comparable" device (method, or product that is not the same as the base device) that has been improved in the same way as the claimed invention;

(3) a finding that one of ordinary skill in the art could have applied the known "improvement" technique in the same way to the "base" device (method, or product) and the results would have been predictable to one of ordinary skill in the art; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The Examiner has not met this burden in this case.

E. The Rejection of Claims 9 and 19

Claims 9 and 19 stand rejected under 35 U.S.C. §103(a) over McCanne in view of Bayrakeri. Apart McCanne's failure to disclose content-based routing, the Examiner presents no evidence as to why or how the teachings of Bayrakeri would "improve" McCanne, even though the Examiner implies that such an improvement would occur in the "same way."

To reject a claim under MPEP 2143, as the Examiner has done in this case, the Examiner *must* resolve the *Graham* factual inquiries, then *must* articulate the following:

(1) a finding that the prior art contained a "base" device (method, or product) upon which the claimed invention can be seen as an "improvement;"

(2) a finding that the prior art contained a "comparable" device (method, or product that is not the same as the base device) that has been improved in the same way as the claimed invention;

(3) a finding that one of ordinary skill in the art could have applied the known "improvement" technique in the same way to the "base" device (method, or product) and the results would have been predictable to one of ordinary skill in the art; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The Examiner has not met this burden in this case.

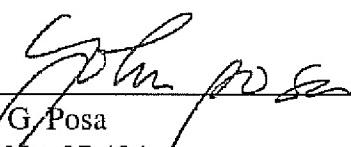
**Conclusion**

In conclusion, for the arguments of record and the reasons set forth above, all pending claims of the subject application continue to be in condition for allowance and Appellant seeks the Board's concurrence at this time.

Respectfully submitted,

By:

Date: July 12, 2010

  
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**APPENDIX A**  
**CLAIMS ON APPEAL**

1. A distributed network computing environment, comprising:
  - a plurality of clients communicating within a multicast cloud distributed network using content-specific data within messages to implement data routing and message culling in a groupware application; and
    - one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message.
2. The environment of claim 1, wherein the application is a distributed simulation or game.
3. The environment of claim 1, wherein the application is a client-selectable and controllable data service associated with the distribution of audio, video, or other digital signal streams.
4. The environment of claim 1, wherein the clients enter, leave, and interact with the cloud through a lobby manager.
5. The environment of claim 4, wherein the lobby manager is further operative to validate the application in terms of compatibility and download data to correct for deficiencies.
6. The environment of claim 4, wherein the lobby manager is further operative to simultaneously support multiple clouds through multicast or replicated unicast protocols.
7. The environment of claim 1, wherein the routing modules implement application-specific message culling to reduce client-cloud communications.

8. The environment of claim 7, wherein the message culling includes message omission, rerouting, and other quality-of-service modifications.

9. The environment of claim 7, wherein the application communicates internal state changes into the cloud through an API.

10. The environment of claim 1, wherein the application is a massive groupware application involving thousands of world-wide participants.

11. A distributed network computing environment, comprising:  
a network-enabled client application;  
at least one lobby manager that facilitates communications between the client application and a federation; and  
one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message to reduce the communications with the federation.

12. The environment of claim 11, wherein the application is a distributed simulation.

13. The environment of claim 11, wherein the application is a game.

14. The environment of claim 11, wherein the application is a client selectable and controllable data service.

15. The environment of claim 14, wherein the data service includes audio, video, or other type of digital signal feed.

16. The environment of claim 11, wherein the routing modules further support a point-to-multipoint distributed communications model between clients.

17. The environment of claim 11, wherein:

at least some of the client applications run on host platforms; and

the routing modules further support conventional internet packet routing among the hosts.

18. The environment of claim 11, wherein the routing modules further support one or more conventional multicast protocols.

19. The environment of claim 11, wherein the application communicates internal state changes into the federation through an API.

20. The environment of claim 11, wherein the message culling includes message omission, rerouting, and other quality-of-service modifications.

21. The environment of claim 11, wherein the lobby manager is further operative to validate the client application compatibility with the federation and download data to correct for deficiencies.

22. The environment of claim II, wherein the lobby manager is further operative to simultaneous process multiple federations.

23. The environment of claim 22, wherein the federations communicate through multicast or replicated unicast protocols.

**APPENDIX B**

**EVIDENCE**

- 1) Decision on Appeal for Appeal No. 2009-000997, dated July 16, 2009; Application No. 09/785,385.
- 2) *Connell v. Sears, Roebuck Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983).
- 3) *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).
- 4) *RCA Corp. v. Applied Digital Data Systems*, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984)
- 5) *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991)

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte CHARLES J. JACOBUS*

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Appeal 2009-000997  
Application 09/785,385  
Technology Center 2400

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Decided:<sup>1</sup> July 16, 2009

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Before JOHN A. JEFFERY, ST. JOHN COURTENAY III, and  
STEPHEN C. SIU, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Data (electronic delivery).

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#### STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-23. We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing on this appeal was conducted on July 9, 2009.

We REVERSE.

#### THE INVENTION

Appellant's invention relates generally to network computing. More particularly, Appellant's invention relates to "a distributed environment that supports massive groupware streaming and peer-to-peer [sic] packetized communications." (Spec. 1).

Claim 1 is illustrative:

A distributed network computing environment, comprising:

a plurality of clients communicating within a multicast cloud distributed network using content specific data within messages to implement data routing and message culling in a groupware application; and

one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message.

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#### PRIOR ART

The Examiner relies upon the following references as evidence in support of the obviousness rejections:

Waters	US 5,841,980	Nov. 24, 1998
Lambright	US 6,015,348	Jan. 18, 2000
DeSimone	US 6,138,144	Oct. 24, 2000

#### THE REJECTIONS

1. The Examiner rejected claims 1, 3-9, 11, and 14-23 under 35 U.S.C. § 103(a) as being unpatentable over the combination of DeSimone and Waters.
2. The Examiner rejected claims 2, 10, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over the combination of DeSimone and Waters, and Lambright.

#### RELATED APPEALS

The following prior BPAI Decision on Appeal is noted with respect to this appeal:

*Ex parte Jacobus*, Appeal No. 2006-2763, decided on January 31, 2007.

#### APPELLANT'S CONTENTIONS

Appellant contends that the claim term “content” should be interpreted in accordance with the ordinary and customary meaning of the term. (App. Br. 3). Appellant further contends that neither DeSimone nor Waters teaches or suggests content which is data within the message where the distribution of a particular message is permitted or inhibited based upon

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the content of the message, as claimed. (*Id.*) In particular, Appellant contends that the portions of DeSimone relied on by the Examiner show that it is the client and not data within messages that dictates what the client wants. (App. Br. 4). Appellant asserts that “*this is the way DeSimone operates – the client decides how to interact with the conference, not the content of messages.*” (*Id.*, emphasis in original).

#### EXAMINER’S FINDINGS

The Examiner states that Appellant’s amendment of the claims (i.e., the amendment of the claims previously before the Board) “simply makes clear what was already implied in the previous iteration of the claims” and “does not substantively change the interpretation of the claims and therefore the reasoning applied in the Board’s decision should apply with full force to Applicant’s current claims.” (Ans. 12; *see also Ex parte Jacobus*, Appeal No. 2006-2763, decided on January 31, 2007).

In particular, the Examiner acknowledges that in DeSimone “the routers and servers within the network route the packets based on the client’s choice.” (Ans. 12, ¶3). The Examiner proffers that it would have been obvious to an artisan that “the client’s choice of media type simply informs routers and servers that comprise the network which packets to route to the client.” (*Id.*) The Examiner maintains that the limitations argued by Appellant are taught or suggested by the cited combination of references, which the Examiner further maintains have been properly combined (Ans. 11-14).

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### ISSUE

Based upon our review of the administrative record, we have determined that the following issue is dispositive in this appeal:

1. Has Appellant shown the Examiner erred in finding that the combination of DeSimone and Waters teaches or suggests content-based routing in addition to normal packet routing (i.e., “one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message,” as claimed)? (See independent claims 1 and 11).

### PRINCIPLES OF LAW

“What a reference teaches is a question of fact.” *In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994); *In re Beattie*, 974 F.2d 1309, 1311 (Fed. Cir. 1992).

Appellant has the burden on appeal to the Board to demonstrate error in the Examiner’s position. See *In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006). Therefore, we look to Appellant’s Briefs to show error in the Examiner’s proffered prima facie case.

### FINDINGS OF FACT

In our analysis *infra*, we rely on the following findings of fact (FF) that are supported by a preponderance of the evidence:

THE DESIMONE REFERENCE

1. DeSimone teaches:

Directory Server 106 functions to maintain a list of multicast IP addresses and ports available for use for a plurality of different and possibly concurrent conferences, to assign a subset of those addresses and ports to a particular conference when a conference is initiated, and to assign from that subset a unique multicast IP address and port number to each media type of each client as that client makes a request to become a member of that conference.

(Col. 5, ll. 5-12).

2. DeSimone teaches:

Upon receiving the set of sockets assigned to it for the conference, the client may decide how it wants to interact in the conference. Specifically, for each media type the client may only want to only receive, or to both receive and transmit, or to just transmit. Further, the client may choose to receive a particular media type from only select other clients on the conference. When a conference is established and a client joins an established conference, therefore, it receives a list of sockets used for transmitting by the other clients associated with the conference.

(Col. 5, ll. 24-33).

3. DeSimone teaches:

At any time during the conference, it may then receive packets from the other clients in the conference on the sockets assigned for transmission to those other clients, *or it may choose not to receive packets of any or all media types from other clients by either not adding the*

*other client's socket(s) to its Multicast Receive Address List (MRAL), or by deleting the other client's socket from its MRAL if it was previously receiving transmissions from the other client.* The client then sets its local interface to receive only those packets whose multicast IP addresses/port numbers match the ones in its MRAL.

(Col. 5, ll. 33-43).

4. DeSimone teaches:

[A]s illustrated in FIG. 1, client terminals 101-1 and 101-2 are members of common IP sub-network 110, clients terminals 101-3 and 101-4 are member of IP sub-network 111, and client terminal 101-5 is a member of IP sub-network 112. IP sub-networks 110, 111 and 112 are interconnected through multicast capable IP routers 113 and 114. A Directory Server (DS) 106, which need not operate in a multicast fashion, is connected to the IP network through router 107, which need not be multicast capable.

(Col. 4, ll. 55-64).

## ANALYSIS

We decide the question of whether Appellant has shown the Examiner erred in finding that the combination of DeSimone and Waters teaches or suggests content-based routing *in addition to* normal packet routing (i.e., “one or more network routing modules or router-embedded applets operative, *in addition to normal packet-routing*, to permit or inhibit the distribution of a particular message *based upon the content of the message*,” as claimed). (See independent claims 1 and 11, emphasis added).

We begin our analysis by noting that the plain language of each independent claim on appeal requires: (1) one or more *network routing modules*, or (2) *router-embedded applets* that are *operative to permit or inhibit* the distribution of a particular message *based upon the content of the message*. In particular, we focus our attention on the further requirement of claims 1 and 11 that the one or more *network routing modules* or *router-embedded applets* are operative to perform the aforementioned content-based routing function *in addition to normal packet-routing*.

The Examiner has acknowledged DeSimone teaches “the routers and servers within the network route the packets based on the client’s choice.” (Ans. 12, ¶3). The Appellant agrees. (App. Br. 4). Nevertheless, the Examiner proffers that it would have been obvious to an artisan that “the client’s choice of media type simply informs routers and servers that comprise the network which packets to route to the client.” (Ans. 12, ¶3). However, we find this rationale by the Examiner at best merely suggests the *normal packet-routing* limitation of each independent claim on appeal, e.g., where a packet is routed according to its destination address.

Based upon our review of the DeSimone reference, we find DeSimone teaches a plurality of client terminals 101 as shown in Figure 1. (FF 4). DeSimone also teaches multicast-capable IP routers 113 and 114. (FF 4). Based upon our review of the evidence, we find DeSimone is silent regarding any express teaching of *network router-embedded applets*.

We find one or more *network routing modules* inherently reside on multicast-capable IP routers 113 and 114 (FF 4). DeSimone also discloses that “[a] Directory Server (DS) 106, which need not operate in a multicast

fashion, is connected to the IP network through router 107, which need not be multicast capable.” (FF 4). We find DeSimone is silent regarding any specific teaching or suggestion that any of the aforementioned routers (inherently containing *network routing modules*) are *operative to permit or inhibit* the distribution of a particular message *based upon the content of the message*, as claimed. We find the aforementioned routers are merely operative to perform *normal packet routing*, as previously discussed.

However, we find Directory Server 106 also necessarily includes one or more *network routing modules*. We find Directory Server 106 provides a routing table (i.e., list of multicast IP addresses and ports available for use) for a plurality of different and possibly concurrent conferences. (FF 1). Directory Server 106 assigns a subset of the aforementioned multicast IP addresses and ports to a particular conference when a conference is initiated. (FF 1). In particular, we acknowledge that when a *client makes a request to become a member of a conference*, Directory Server 106 then *assigns (from the aforementioned subset of available multicast IP addresses and ports) a unique multicast IP address and port number to each media type (e.g., audio or video) of each client making a request*. (FF 1).

However, we agree with both the Appellant and the Examiner that DeSimone teaches it is the *client's request* that *controls* whether the distribution of a particular message is permitted or inhibited based upon the *media type* of the message. (See FF 2: “for each media type the client may only want to only receive, or to both receive and transmit, or to just transmit. Further, the client may choose to receive a particular media type from only select other clients on the conference.”). To the extent that Directory Server

106 may *indirectly* perform the assignment of available multicast IP addresses and ports *based upon* the client's choice to receive a particular media type (FF 2), we note that Appellant has strenuously argued in the Briefs that “*content*” as claimed is *not media type*<sup>2</sup> (App. Br. 3, ¶¶ 2-3; *see also* Reply Br. 1-2).

Under the doctrine of file wrapper or prosecution history estoppel, we hold Appellant to this more narrow construction of the claimed “*content*” where “*media type*” has been disclaimed by Appellant’s arguments as being a form of content used to determine routing. Consistent with this construction, we read the instant claims as requiring *specific data content in a message* to trigger content-based routing. According to Appellant’s unequivocal interpretation, the mere *type* of content (e.g., audio or video) would be insufficient to trigger the claimed content-based routing. (App. Br. 3, ¶¶ 2-3; *see also* Reply Br. 1-2). *See Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985) (ruling that “the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance”). “As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution.” *Omega Engineering, Inc., v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) (citing *Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1347 (Fed. Cir. 1998)). “[W]here the patentee has unequivocally disavowed a certain meaning to

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<sup>2</sup> DeSimone describes “*media-type*” as audio or video. (Col. 2, l. 37).

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obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender.” *Omega*, 334 F.3d at 1324.

Moreover, our review of the record reveals that the Examiner has read the claimed “lobby manager” (claim 4) on DeSimone’s Directory Server 106. (*See* Ans. 5 and 13). Therefore, we find the Examiner’s position is unconvincing because: (1) the Examiner has admitted that DeSimone teaches that “the routers and servers within the network route the packets based on the client’s choice” (Ans. 12, ¶3.) and, (2) DeSimone’s Directory Server 106 cannot reasonably correspond to both the claimed “one or more network routing modules” of claims 1 and 11, and the claimed “lobby manager” as recited in claim 11 and claim 4 (that depends from claim 1).

We do not find, nor has the Examiner established, that Waters or Lambright overcomes the deficiencies of DeSimone, as discussed *supra*. Accordingly, after considering the totality of the record before us, we find the weight of the evidence supports the Appellant’s position.

Because Appellant has successfully demonstrated that the Examiner has erred, we reverse the Examiner’s rejection of independent claims 1 and 11 under 35 U.S.C. § 103(a) as being unpatentable over the combination of DeSimone and Waters. Because we have reversed the Examiner’s obviousness rejection of each independent claim on appeal, we also reverse the obviousness rejections of the dependent claims on appeal.

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## CONCLUSION

Based on the findings of facts and analysis above, Appellant has established that the Examiner erred in finding that the combination of DeSimone and Waters teaches or suggests content-based routing in addition to normal packet routing (i.e., “one or more network routing modules or router-embedded applets operative, in addition to normal packet-routing, to permit or inhibit the distribution of a particular message based upon the content of the message,” as claimed). (See independent claims 1 and 11).

## DECISION

We reverse the Examiner’s decision rejecting claims 1-23 under 35 U.S.C. § 103(a).

REVERSED

pgc

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LEXSEE 722 F.2D 1542

JERRY F. CONNELL, GARY F. BURNS and CONELCO, INC., Appellants/Cross-Appellees, v. SEARS, ROEBUCK & CO., a Corporation, Appellee/Cross-Appellant

Appeals Nos. 83-841, 83-842

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

*722 F.2d 1542; 1983 U.S. App. LEXIS 13699; 220 U.S.P.Q. (BNA) 193*

November 23, 1983

SUBSEQUENT HISTORY: [\*\*1] As Amended.

PRIOR HISTORY:Appealed from U.S. District Court of Northern Alabama (Middle Division).

DISPOSITION: AFFIRMED IN PART, MODIFIED IN PART, VACATED and REMANDED IN PART.

COUNSEL: Thomas E. Davis, of Gadsden, Alabama, argued for Appellants.

Walther E. Wyss, of Chicago, Illinois, argued for Appellee. With him on the brief were Neil M. Rose and C. Ronald Olbrysh .

JUDGES: Markey, Chief Judge, Smith, Circuit Judge, and Cowen, Senior Circuit Judge.

OPINION BY: MARKEY

OPINION

[\*1545] MARKEY, Chief Judge.

Jerry F. Connell, et al. (Connell), appeals from a judgment notwithstanding the verdict (JNOV) of the United States District Court for the Northern District of Alabama Middle Division holding *U.S. Patent No. 3,459,199 (the '199 patent)*, issued in 1969 for a hair "teasing and unsnarling implement", invalid for obviousness under 35 U.S.C. § 103, and finding noninfringement by certain hair curler devices. Sears, Roebuck and Co. (Sears), cross appeals the judgment that the patent was not unenforceable for fraud, and a denial of costs. We affirm in part, modify in part, and vacate and remand in part.

*Background*

On March 24, 1981, Connell sued Sears, charging that various hair [\*\*2] curlers sold by Sears infringed the '199 patent. Sears denied infringement and counter-claimed for a declaratory judgment that the '199 patent was invalid. A seven day jury trial was conducted in September 1982. Proceeding under *Fed.R.Civ.P. 49(b)*, the trial court submitted to the jury forms for a general verdict and fifteen written interrogatories. The jury made special written findings, *Fed.R.Civ.P. 49(a)*, and indicated that the '199 patent was valid, enforceable, and infringed by the accused curlers. The jury found that Connell had not concealed "material" prior art and that no fraud occurred in prosecution of the Connell application.

Having moved for directed verdict at the close of Connell's case, and having renewed that motion at the close of all the evidence, Sears moved for JNOV under *Rule 50*, *Fed. Rules Civ.P.*, on receiving the jury verdict.

Judge Clemon entered a final judgment in Sears' favor on February 11, 1983, holding the patent invalid for obviousness and finding that the claims in suit were not infringed by the accused hair curlers, on the ground that the jury's key related findings were unsupported by substantial evidence. *Connell v. Sears*, 559 F.Supp. [\*\*3] 239, 232 (N.D. Ala. 1983).

Affirmance of the judgment as correctly granted on the basis of obviousness under § 103 makes it unnecessary to discuss here the alternative bases asserted on appeal for invalidity under §§ 102 and 112, the jury findings on which were not disturbed.

The Final Judgment of February 11, 1983 awarded costs to Sears, but on March 4, 1983 the court, without

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reference to that judgment, signed an Order that each party bear its own costs.

#### *Issues*

(1) Whether there was error in granting the motion for judgment notwithstanding the verdict.

(2) Whether denial of costs to Sears amounted to an abuse of discretion.

#### **OPINION**

##### *(1) The Trial Court Did Not Err In Granting Judgment Notwithstanding the Verdict*

Our review of the judgment, the accompanying opinion, the record, the prior art, [\*1546] and the parties' briefs, convinces us that there is not and never has been a basis for denying the motion for JNOV filed in this case.

Jury verdicts must be treated with great deference. The *Seventh Amendment to the Constitution* preserves the right to trial by jury in suits at common law and also provides that United States Courts shall not re-examine facts tried [\*\*4] by jury except under the rules of common law. With the merger of law and equity, denial of the right in certain types of cases ceased. Permitting the jury to draw legal conclusions based on the jury's fact findings and reached in light of instructions on the law has been preserved as part of the right. The court, though it remains ultimately responsible for upholding the law applicable to the facts found, cannot substitute its view for that of the jury when to do so would be an effective denial of the right to trial by jury.

Deference due a jury's fact findings in a civil case is not so great, however, as to require acceptance of findings where, as here, those findings are clearly and unquestionably not supported by substantial evidence. To so hold would be to render a trial and the submission of evidence a farce.

Following a civil jury trial, a jury may return a naked general verdict for one of the parties. That verdict involves a presumption that the jury found the facts and reached the legal conclusions undergirding its verdict. That practice leaving a wide area of uncertainty on review, appellate judges have expressed grave concern over use of the general verdict in civil [\*\*5] cases. Still, there are safeguards and alternatives. *Rule 49(a)* *Fed.R.Civ.P.*, provides for special verdicts in which the jury answers specific fact questions. *Rule 49(b)* provides for general verdicts accompanied by the jury's answers to interrogatories. *Rule 50(a)* provides for a directed verdict at the close of the case presented by one side. *Rule 50(b)* provides for a judgment notwithstanding the jury's verdict such as that with which we here deal. *Rule 51* pro-

vides for instructions to the jury on the law to guide its conclusions on legal questions. Rule 52 makes clear that the court must make its own fact findings and reach its own conclusions of law when sitting with an advisory jury. Rule 59(a) provides for a new trial on many grounds, including a determination that a jury had reached its verdict as a result of passion and prejudice. In sum, the right to trial by jury in a civil case carries with it a number of procedural safeguards insuring the parties and the system against an improper outcome that might result from a posited unruly or "rogue elephant" jury. The rules have thus strengthened the right by insuring the reliability of jury verdicts.

To govern consideration [\*\*6] of motions for a directed verdict and for judgment notwithstanding the verdict, guidelines consistent with the *Seventh Amendment* and the cited Rules have been set forth in the cases. See *Boeing Co. v. Shipman*, 411 F.2d 365, 374 (5th Cir. 1969) (en banc); *Mays v. Pioneer Lumber Corp.* 502 F.2d 106, 107 (4th Cir. 1974), cert. denied, 420 U.S. 927, 43 L. Ed. 2d 398, 95 S. Ct. 1125 (1975); *Wyatt v. Interstate & Ocean Transport Co.*, 623 F.2d 888, 891 (4th Cir. 1980).

Under these guidelines, a court must: (1) consider all the evidence; (2) in a light most favorable to the non-mover; (3) drawing reasonable inferences favorable to the non-mover; (4) without determining credibility of witnesses, and (5) without substituting its choice for that of the jury between conflicting elements in the evidence. The court should not be guided by its view of which side has the better case or by what it would have done had it been serving on the jury. If, after following those guidelines, the court is convinced upon the record before the jury that reasonable persons could not reach or could not have reached a verdict for the non-mover, it should grant the motion for directed verdict [\*\*7] or for JNOV.

The listed guidelines are fully applicable in a patent infringement suit. The court must inquire, under the proper legal standard of patentability, whether the evidence and inferences reasonably drawn therefrom, when viewed in the light most [\*1547] favorable to the non-moving party and without weighing credibility, is or is not substantial. See *Pederson v. Stewart-Warner Corp.*, 400 F.Supp. 1262, 1264 (N.D.Ill. 1975), affirmed 536 F.2d 1179 (7th Cir. 1976).

The question of obviousness under 35 U.S.C. § 103 is a question of law. *Stevenson v. ITC*, 67 C.C.P.A. 109, 612 F.2d 546, 204 USPQ 276 (CCPA 1979). Like all legal conclusions, that on obviousness is reached after answers to a series of potential fact questions have been found, and in the light of those answers. In the ordinary patent case, the trier of fact must answer the factual inquiries outlined in *Graham v. John Deere Co.*, 383 U.S.

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*I, 148 USPQ 459, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966)* and relating to: (1) the scope and content of the prior art, (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) whatever objective evidence [\*\*8] may be present as indicia of nonobviousness.

We hold that it is not error to submit the question of obviousness to the jury. No warrant appears for distinguishing the submission of legal questions to a jury in patent cases from such submissions routinely made in other types of cases. So long as the *Seventh Amendment* stands, the right to a jury trial should not be rationed, nor should particular issues in particular types of cases be treated differently from similar issues in other types of cases. Scholarly disputes over use of jury trials in technically complex cases relate to the right to trial by jury itself, and center on whether lay juries are capable of making correct fact determinations, not over the propriety of submitting legal questions to juries. The obviousness issue may be in some cases complex and complicated, on both fact and law, but no more so than equally complicated, even technological, issues in product liability, medical injury, antitrust, and similar cases. Indeed, though the analogy like most is not perfect, the role of the jury in determining obviousness is not unlike its role in reaching a legal conclusion respecting negligence, putting itself in the shoes [\*\*9] of one "skilled in the art" at the time the invention was made in the former and in the shoes of a "reasonable person" at the time of the events giving rise to the suit in the latter.

When a jury merely reports a general verdict for one of the parties, as above indicated, the decision on a motion for JNOV or on direct appeal requires assumptions respecting its consideration of the evidence. Submission of the obviousness question to the jury should therefore be accompanied by detailed special interrogatories designed to elicit responses to at least all the factual inquiries enumerated in *Graham, supra*, and based on the presentations made in the particular trial. In so holding, we note the similar views expressed by other courts: *Control Components, Inc. v. Valtek, Inc.*, 609 F.2d 763, 767, 204 USPQ 785, 788 (5th Cir.), cert. denied, 449 U.S. 1022, 66 L. Ed. 2d 484, 101 S. Ct. 589 (1980); *Velo-Bind Inc. v. Minnesota Mining & Mfg. Co.*, 647 F.2d 965, 971, 211 USPQ 926, 932 (9th Cir.), cert. denied, 454 U.S. 1093, 70 L. Ed. 2d 631, 102 S. Ct. 658 (1981); *Manufacturing Research Corp. v. Graybar Electric Co.*, 679 F.2d 1355, 1365, n. 19, 215 USPQ 29, 36, n. 19 (11th [\*\*10] Cir. 1982).

Submission of the obviousness question to the jury should also be accompanied by appropriate instructions on the law. *Rule 51, Fed.R.Civ.P.* Though tailoring may be required in individual cases, such instructions should track the statute, 35 U.S.C. § 103, making it clear, at a

minimum, that the jury must consider the invention as a whole and that each jury person must walk in the shoes of one skilled in the art at the time the invention was made. Like all legal conclusions, that on obviousness must, as above indicated, rest on a foundation constructed of all relevant and probative facts found in light of all the evidence. If that foundation crumbles, the legal conclusion on which it rests must fall.

Thus submission of the question of obviousness to a jury does not preclude, in a proper case, the grant of a motion for JNOV. If the facts found on substantial evidence be insufficient to support or contrary to a jury's legal conclusion, or if the facts found, though they would be capable [\*1548] of supporting the legal conclusion, were based on evidence less than substantial, a judge may, following the guidelines set forth above, grant the motion. [\*\*11] The latter circumstance prevails here, where the facts underlying the jury's nonobviousness conclusion were not supported by substantial evidence.

#### *The Trial Court's Opinion*

The reader of this opinion is respectfully referred to the exhaustive opinion published at 559 F.Supp. 229 (1983). There the reader will find, *inter alia*, a complete statement of the facts, a thorough discussion and evaluation of the two claims in suit, and the full discussion of the prior art mandated by *Graham, supra*, 383 U.S. at 17-18, 148 USPQ at 67, along with numerous sketches and patent drawings.

Because the opinion correctly explicates a substantial portion of the law of patents, pause is given the fault-finder. Nonetheless, the uniformity imperative that informed the creation of this court impels a short discussion of some statements appearing in the opinion.

It should be said that most statements discussed in this section were quoted or apparently gleaned from opinions of various circuits issued before 1 October 1982. Though this court has not yet established a large body of guiding precedent, a beginning must be made toward the goal of uniformity and reliability in the patent [\*\*12] laws. A part of that beginning involves our stating disagreement when the same is present. It bears repeating, also, that of the 18 pages comprising the trial court's opinion, the following limited portions, which did not influence the judgment appealed from and are neither defended nor attacked on appeal, are deemed sufficiently misdirected to require discussion.

The opinion says a patent is invalid if it "subtracts from former resources freely available to skilled artisans", citing *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 95 L. Ed. 162, 71 S. Ct. 127 (1950). The meaning of the phrase is obscure. If it means an invalid patent, if enforced, would

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subtract resources that would otherwise be available, it is a mere truism. If it means that upholding a multi-element claim as valid "subtracts" those elements (resources), it is untrue. All such elements remain fully available, albeit not in the particular arrangement claimed or in appropriate equivalent arrangements.

The phrase "patent monopoly" appears at various points. Under the statute, 35 U.S.C. § 261, a patent is a form of property right, and the right to exclude recognized in a patent [\*\*13] is but the essence of the concept of property. *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed.Cir.1983).

The opinion says anticipation may be shown by less than "complete anticipation" if one of ordinary skill may in reliance on the prior art "complete the work required for the invention", and that "it is sufficient for an anticipation if the general aspects are the same and the differences in minor matters is only such as would suggest itself to one of ordinary skill in the art." Those statements relate to obviousness, not anticipation. Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim. *Soundscaler Corp. v. U.S.*, 175 Ct. Cl. 644, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct.Cl. 1966). A prior art disclosure that "almost" meets that standard may render the claim invalid under § 103; it does not "anticipate." Though it is never necessary to so hold, a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for "anticipation is the epitome of obviousness," *In re Fracalossi*, 681 F.2d 792, 215 USPQ 569 (CCPA 1982). The reverse is not true, [\*\*14] for the need to determine obviousness presumes anticipation is lacking.

The opinion says that where a "combination" patent is involved the "linchpin" is whether the "aggregation produced a new or different result or achieved a synergistic effect." There is no support for those statements in the statute. There is no classification entitled "combination patents." [\*1549] Virtually every invention is a combination of elements or process steps, and synergism, or its equivalent "new and different result," is not required for patentability. *Chore-Time Equipment, Inc. v. Cumberland*, 713 F.2d 774, 218 USPQ 673 (Fed.Cir.1983); *Bowser, Inc. v. U.S.*, 181 Ct. Cl. 834, 388 F.2d 346, 156 USPQ 406 (Ct.Cl. 1967). See Miller, "Factors of Synergism and Level of Ordinary Skill in the Pertinent Art in Section 103 Determinations," 8 APLA Jrl 321 (1980).

The opinion quotes a statement indicating that an invention meeting with great skepticism and great acclaim would nonetheless be unpatentable "if the elements comprising the invention are disclosed by an examination of the prior art." That cannot as stated be the law. Humans

must work with old elements, most if not all of which [\*\*15] will normally be found somewhere in an "examination of the prior art." Though all elements were old, the invention was held patentable precisely because experts were skeptical, for example, in *United States v. Adams*, 383 U.S. 39, 148 USPQ 479, 15 L.Ed. 2d 572, 86 S. Ct. 708 (1966).

The opinion says obviousness is established when "features that distinguish" the invention from the closest reference "are disclosed in analogous structures in which the features perform an identical function." It is not "features" but the subject matter of the invention "as a whole" that must be considered, 35 U.S.C. § 103. That features, even distinguishing features, are "disclosed" in the prior art is alone insufficient. As above indicated, it is common to find elements or features somewhere in the prior art. Moreover, most if not all elements perform their ordained and expected function. The test is whether the claimed invention as a whole, in light of all the teachings of the references in their entirities, would have been obvious to one of ordinary skill in the art at the time the invention was made. 35 U.S.C. § 103.

The opinion says that when the *three* factual inquiries listed in [\*\*16] *Graham, supra*, have been answered, the objective evidence of nonobviousness need not be considered. That approach ignores *Graham's* reference to a *fourth* inquiry, namely an inquiry into whatever objective evidence of nonobviousness (called "secondary considerations" and "indicia" in *Graham*) may appear in the record. It is inappropriate and injudicious to disregard any admissible evidence in any judicial proceeding. Hence, all relevant evidence on the obviousness issue must be considered before a conclusion is reached. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed.Cir.1983). Judge Clemon, however, considered and properly rejected the only such *indicia* apparently here raised, i.e., commercial success.

The opinion says that where "pertinent" and "any relevant" art was not considered by the Patent and Trademark Office (PTO), the presumption of validity is "severely weakened" and "eroded." As above indicated, there is virtually always "pertinent" and "relevant" art apparently unconsidered in the PTO and available to a patent challenger. The presumption does not change upon introduction of that art, or at any other time. It is upon [\*\*17] introduction of art *more* pertinent or *more* relevant than that considered by the PTO (as happened here) that the patent challenger's burden may be more easily carried. Such art may in a proper case serve to fully meet that burden. See *SSIH Equipment S.A. v. ITC*, 718 F.2d 365, 218 USPQ 678 (Fed.Cir.1983).

The opinion also says that when "any relevant" non-considered art is introduced, the burden upon the patent

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challenger is thereby changed from a requirement for clear and convincing proof to one of proof by a mere preponderance. Proof, however, relates not to legal presumptions, but to facts. The patent challenger may indeed prove facts capable of overcoming the presumption, but the evidence relied on to prove those facts must be clear and convincing. Thus, the introduction of art or other evidence not considered by the PTO does not change the burden and does not change the requirement that that evidence establish presumption-defeating facts clearly and convincingly.

#### *[\*1550] The Trial Court's Action*

No error whatever occurred in granting Sears' motion for judgment NOV on the ground that the jury's conclusion of nonobviousness was without factual foundation [\*18] supported by substantial evidence. The jury's legal conclusion disregarded (and cannot stand against a contrary conclusion resting on) prior art not considered in the PTO and far more pertinent than that the PTO did consider. Our independent consideration of the record under the above standard for grant of JNOV results in agreement with the trial court's action in which, without resolving credibility questions, he dismissed the relevant jury findings as unsupported by substantial evidence, and as findings that could not be made by reasonable minds in view of the evidence. We need not discuss the record in detail in view of findings not only unsupported by, but contrary to the evidence. As but one example of the latter, the jury finding that there was "no prior art" could not possibly stand in the face of the numerous clearly relevant prior art patents in the trial record. The interested reader is referred to the portions of Judge Clemon's opinion headed "(a) The Teaching(s) of the Patent In Suit," (b) "Scope And Content Of The Prior Art," and (e) "Obviousness," 599 F. Supp. at 236-244.

Acting in the interest of judicial economy, the trial court proceeded to decide, correctly, [\*19] the infringement issue, while fully recognizing that infringement of an invalid patent can create no legal liability. The jury's findings that the accused curlers were literal and equivalent infringements were properly set aside as totally unsupportable in light of the record, and as findings that could not have been made by persons of reasonable minds. The reader is referred to the section of trial court's opinion headed "The Infringement Evidence," 599 F. Supp. at 246-250.

Because there was no error in: (1) submitting the obviousness-nonobviousness issue to the jury, while recognizing that it is ultimately a question of law decidable by the court in response to a motion for JNOV; (2) evaluating the prior art of record, with all reasonable inferences resolved in Connell's favor; (3) evaluating the jury's answers to relevant interrogatories without resolv-

ing credibility questions; (4) determining that the jury's answers to those interrogatories were not supported by substantial evidence; and (5) determining that "reasonable [sic] minded persons can only reach the conclusion" upon the facts of record that the inventions of the asserted claims and of those discussed in [\*20] the testimony would have been obvious under § 103, the grant of Sears' motion for JNOV must be and is affirmed.

#### *Unenforceability*

The issue has been presented and argued at trial and on appeal as related to enforceability, not fraud. Patents held nonenforceable can become enforceable upon discontinuance of the conduct which led to the holding. Fraud on the PTO may result in a holding of invalidity, the equivalent of permanent nonenforceability. In the present case, it would appear that the argument for nonenforceability rests on misrepresentation and failure to disclose to the PTO, conduct incurable with respect to the claims as presently drawn. In view of its treatment by the parties, the jury, and the trial court, however, we accept and dispose of the issue as presented.

It is undisputed that Connell concealed from the PTO at least the five prior art patents he received from the patent lawyer he first consulted and who advised that his invention might not be patentable. Connell then [\*21] sought new counsel, who filed and prosecuted the application and testified at the trial.

It is clear on the record that the PTO was told that tapered teeth of a particular shape were not disclosed in the prior art, that Connell knew teeth of that precise shape were disclosed in one of the concealed prior patents, and that, as the trial court indicated, the Connell patent would not have issued if that prior art disclosure had not been concealed.

The trial court did not disturb the jury's determination that the patent was not unenforceable. Judge Clemon stated, however, that had he been "sitting as trier of fact," he would have found otherwise, in [\*1551] view of the prosecution history of the application in the PTO:

The jury found that the '799 patent in suit is enforceable. If sitting as the trier of fact, the Court would find otherwise; based on the dealings between plaintiffs' counsel and the Patent Office [sic]. However, the role of the court on this issue is limited to determining whether the finding

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is supported by substantial evidence. The Court finds substantial, though not overwhelming, evidence for the jury's finding; and, accordingly it will not be disturbed.

[\*\*22] Though unenforceability appears to have been thought a question of fact, and it is a question of law, the trial court's determination that there was substantial evidence in support of the jury's verdict on the question renders that erroneous label harmless. The legal conclusion on unenforceability, like that on fraud and all other legal conclusions, rests on fact findings and where, as here, the judge who heard all the evidence and observed the witnesses determined that the jury's findings were supported by substantial evidence in support of the conclusion, denial of the motion for JNOV was proper. To hold otherwise would be to render the jury a nullity.

Sears says the court's determination that the concealed art was more significant than that considered by the PTO is alone sufficient to make the question one of unclean hands and thus an equitable issue determinable only by a court. On that basis, it requests a remand to the trial court with instructions to award attorney fees incurred at trial. Sears' difficulty, however, is twofold. The merger of law and equity dissolved the distinction once governing issues submissible to a jury, and Sears has not shown [\*\*23] that the verdict relating to enforceability was not supported by substantial evidence.

The counsel who represented Connell in prosecuting the application testified that in failing to disclose prior art he believed he was following the standard of candor due the PTO at the time. Though the record would have benefitted from a citation of the evidence the trial court viewed as supporting, it may well have been that testimony of counsel, doubtless credited by the jury as establishing a lack of intent to improperly mislead the PTO.

Sears' brief cites recent cases, dealing with the current and uncompromising duty of candor and good faith set forth in 37 CFR § 1.56(a). It is regrettable but true that the present standard was not earlier recognized, promulgated, and enforced. The earlier standard described by the witness apparently led him to find room for the kind of gamesmanship practiced in connection with the Connell application pre-1969, as reflected in his testimony. Nonetheless, the trial court and we are precluded by the jury's verdict, the standard governing JNOV, and the need to preserve the right to trial by jury, from acting on our own assessment of the credibility [\*\*24] of that testimony.

Though the conduct here was egregious, and might well have been so considered under earlier standards, we are not at liberty either to apply the present standard retroactively in this case, or to overturn the refusal to disturb the jury's determination on enforceability. That refusal was entered by a judge who had presided at the trial, had observed the witnesses, and had demonstrated a willingness to set aside those jury determinations clearly not supported by substantial evidence. That he, and we, if at liberty to do so, might have found facts rendering the patent unenforceable, or might have applied 37 CFR § 1.56(a) as a codification of earlier case law, see *True Temper Corp. v. CF & I Steel Corp.*, 601 F.2d 495, 202 USPQ 412 (10th Cir. 1979), are considerations not at issue. Application of personal predilections to achieve a result oriented thereby is not the role of judges. Nor are we free to impose a policy that would render inapplicable to patent cases motions for directed verdict, motions for JNOV, and jury instructions on the law, any more than we are to impose such a policy on any other type of case in which jury verdicts on the whole [\*\*25] case are by the rules of our jurisprudence and the Constitution authorized.

[\*1552] Sears, while asserting unenforceability for fraud as a basis for attorney fees, makes no effort to establish that reasonable persons could not have made fact findings underlying the conclusion reached by the jury on enforceability. Relying entirely on the sole fact of nondisclosure of known art, it has not demonstrated that reasonable persons could not reasonably have found an absence of the intent element of fraud. Having been shown no basis on which we can reverse the refusal to disturb the jury's determination, we deny the request for remand for determination of Sears' attorney fees incurred before this appeal was filed.

#### *The Declaratory Judgment*

No claim of a patent declared invalid can be enforced, absent denial of a fair opportunity in the litigation that resulted in the declaration and a favorable outcome in a subsequent suit. Though only claims 1 and 5 were allegedly infringed, the entire patent was declared invalid in response, apparently, to Sears' counterclaim for declaratory judgment that the patent was invalid. Neither party has questioned on appeal the propriety of a declaration [\*\*26] that a "patent" is invalid when all claims were not separately considered, each on its merits. The statute, however, requires that courts refrain from applying to claims that do not form part of the record the invalidity conclusion applied to claims that do. Each claim must be presumed valid independently of the validity of any other claim. 35 U.S.C. § 282.

The record has accordingly been reviewed to determine the claims subject to the declaratory judgment. Because Connell restricted, just before trial, its complaint for infringement to claims 1 and 5, most of the trial testimony centered on those claims. Nonetheless, jury in-

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terrogatories included those asking whether "any of the claims" were infringed, whether any of the earlier patents were "prior art to the '199 patent," whether "plaintiffs' invention presented something new and different," and whether plaintiffs filed suit in a "good faith belief that all the claims . . . were valid." The trial court, though stating that only claims 1 and 5 were involved, and granting the motion on the ground that the inventions set forth in those claims would have been obvious, spoke at other points in broader terms indicating that all [\*\*27] claims were invalid. There was substantial testimony in which claims 3 and 4 were compared with the prior art and from which the declaratory judgment that the patent was invalid may be seen as encompassing those claims.

Because dependent claim 2 was not before the trial court, by way of testimony or otherwise, and because that claim is not before this court, there is no basis on which we could properly rest a conclusion that that claim is invalid.

Though we are not at liberty to consider *de novo* the validity or invalidity of claim 2, and the declaratory judgment must be modified to remove that claim from its effect, preservation of claim 2 here in response to 35 U.S.C. § 282 raises no implication respecting its validity or invalidity. The claim is directed to the addition of rotating means to the structure of invalid claim 1. It may be expected, however, that our affirmance of the JNOV will substantially impede if not end Connell's propensity for filing suit on the '199 patent, or for continuing to prosecute the case now pending in the trial court. (*Connell v. K-Mart, Inc.*, No. 82-C-1261-M (N.D. Ala.)).

## (2) Costs of Trial

Sears emphasizes [\*\*28] that part of *Rule 54(d)* Fed. R. Civ. P. reading "costs shall be allowed as of course to the prevailing party," and cites cases requiring compelling circumstances to justify equal apportionment of costs. Connell emphasizes the next phrase in *Rule 54(d)* reading "unless the court otherwise directs." Because no reason was cited for the March 4, 1983 Order that each party pay its own costs, neither party is able to support their respective arguments that an abuse of discretion did and did not occur.

Sears cites cases indicating that an abuse lies in disregarding the presumption that costs should be awarded to the prevailing party when there has been no showing or [\*1553] finding of circumstances sufficient to overcome the presumption. It has been said that cost awards to winners are regarded as a fair price losers pay for using the judicial system, and that courts should deny costs to winners only when the award would be unjust. See *Sun Ship, Inc. v. Lehman*, 211 U.S. App. D.C. 81, 655 F.2d 1311, 1315 (D.C. Cir. 1981).

Connell sought and obtained costs following the jury verdict. The JNOV taxed costs in favor of Sears. Costs apparently remain taxed against but unpaid [\*\*29] by Connell. As above indicated, the March 4, 1983 Order provided that each party would pay its own costs. Sears has moved in the trial court for an order retaxing costs against Connell and that motion is currently pending in that court.

The matter being one committed in the first instance to the sound discretion of the trial court, we will not in this case substitute our judgment at this stage with respect to the award of costs connected with the trial. The March 4, 1983 order must be vacated, and the question of costs must be remanded, so that the trial court may deal with Sears' currently pending motion. The trial court is of course at liberty to enter such order as it may deem just, including one reinstating either its March 4, 1983 Order or the award of costs made in its JNOV. If the trial court elects to reinstate the March 4, 1983 Order, it is anticipated that reasons for doing so will be entered on the record to facilitate review if reinstatement of that order should be appealed.

## *Costs, Attorney Fees, and Sanction on Appeal*

This is but one of five lawsuits filed on the '199 patent by Connell. Three were settled before trial for \$30,000, \$42,500, and \$100,000, [\*\*30] respectively. Counsel for defendants in all three of those suits testified in this case that they were convinced the Connell patent was invalid, but that the settlements were entered solely because those amounts were far less than the cost of litigation.

In finding no commercialization of Connell's invention and no commercial success whatever in the then entire 13 year life of the patent, the trial court noted that the only "success" Connell has had was in obtaining money in exchange for filing and then dropping lawsuits.

Before filing his application, Connell was told by patent counsel that the invention might not be patentable, and was told of very close, almost identical prior art supporting that opinion. Connell obtained new counsel and concealed that art from the PTO. As the trial court correctly observed, submission of that art would have expanded the PTO's view beyond the two patents it cited in response to Connell's limitation of his claims to a hair teasing and unsnarling device. Disregarding that limitation, Connell sued for infringement by hair curling devices virtually identical with prior art curlers. Informed well before trial of all the prior art now of record, [\*\*31] and of the effect of his non-disclosure to the PTO, Connell nonetheless proceeded with the trial. The entire scenario thus represents an abuse of the patent system and the judicial process.

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Continuing to abuse the judicial process, Connell filed and prosecuted this appeal. Connell's main brief on appeal begins with 25 pages on which portions of the testimony of all witnesses is repeated in counsel's words. The next three pages repeatedly set forth the unchallenged standard for grant of JNOV. The next three set forth the unchallenged authority for submission of the obviousness issue and interrogatories to the jury. The next two constitute the sole effort of Connell to demonstrate error on obviousness, and that effort of consists only in citation of a legal opinion of nonobviousness given from the witness stand by the patent lawyer who prosecuted the Connell application. The brief nowhere discusses the jury's answer that there was "no" prior art. It calls the legal conclusion of obviousness a "finding."

The next four pages of Connell's main brief quote excerpts from testimony about an unsnarling "function" said to constitute substantial evidence on which a finding of infringement [\*\*32] could be made. The last four pages repeat the JNOV standard, charge [\*1554] the court with denying the constitutional right to trial, substitute a mention by the court of the plaintiff's burden on infringement for the lack of substantial evidence standard clearly employed by the court, and argue that the Connell's tangle-free function was nonobvious, disregarding the structural elements of the claims in suit and the relationship of those elements to the prior art or the accused curlers.

Connell's main brief is essentially that filed in the trial court (including an erroneous statement that the jury found the invention obvious). That practice is not in itself impermissible, but Connell should not be surprised if it results in the same outcome. Sole reliance on a legal conclusion of a lawyer witness, while disingenuously describing it as factual evidence sufficient to preclude JNOV, results in a total failure to present a rational basis for reversal on the obviousness issue.

Connell's reply brief repeats the unchallenged standard for grant of JNOV, again argues obviousness as a fact finding matter, accusing the court of substituting its own "finding," argues [\*\*33] that courts should never grant JNOV after submitting the obviousness issue to a jury, and again emphasizes patent counsel's legal conclusion as substantial evidence. In discussing infringement, the brief disparages nine prior patents as disclosing curlers which lacked the "non-tangling concept" of Connell, but nowhere applies the structural elements of the claims to the accused curlers.

Connell's briefs here continue its failed effort before the trial court (though successful before the jury) to improperly carry water on both shoulders. Connell deprecates the prior art devices as curlers, not teasing and unsnarling instruments; then, in asserting infringement,

Connell insists that the Sears curlers (which are substantially identical to the prior art) "could be used" as teasing and unsnarling instruments. The trial court pointed to the legal impropriety of treating the structural claims in suit one way when considering validity and another when considering infringement, citing *Sterner Lighting, Inc. v. Allied Electrical Supply, Inc.*, 431 F.2d 539, 544, 166 USPQ 454, 459 (5th Cir. 1970). Connell's repetition of its insupportable approach here, as though the trial court's [\*\*34] opinion, *Sterner*, and the impropriety did not exist, reflects a regrettable lack of candor due this court.

Connell's reply brief contains a statement that this was the first patent trial for Connell's counsel and for the trial judge. That fact, if true, does not remove the impropriety of the present appeal. Inexperience does not affect the ability to read and apply the law to the simple facts in this record; nor does it justify the filing of an appeal when no basis for reversal in law or fact can be or is even arguably shown.

The definition of what constitutes a frivolous civil appeal is difficult. Courts must guard against an oversensitivity to what may be only an apparent abuse. It is clear that appeals having a small chance of success are not for that reason alone frivolous. One may legitimately argue, for example, that even overwhelming contrary precedent should be overruled or distinguished. In the present case, however, Connell disputes no law or precedent or the applicability of either. Its effort to show the presence of substantial evidence on nonobviousness in support of the jury's verdict is limited, as above indicated, to a lawyer's opinion statement from the [\*\*35] witness stand that he thought the inventions nonobvious, while totally disregarding the presence in the record of unchallenged evidence destroying support for that opinion, ignoring the difference between fact evidence and a legal conclusion, and making no mention or recognition of the fundamental rule in American civil jurisprudence underlying Rule 50, i.e., that legal questions are ultimately reserved to the judge who bears a final responsibility for upholding the law when a jury's verdict is challenged as unsupported by substantial evidence.

Whatever the events in the district court, we are duty-bound to guard our segment of the judicial process against abuse. The present appeal was filed and maintained in the face of an unassailably proper grant of a judgment NOV, a grant supported and explained by an exhaustive opinion indicating [\*1555] the error-free nature of the conclusion on obviousness in light of the prior art. The impossibility of citing fact evidence in the record to support even minimally the jury findings relating to that issue is reflected in Connell's briefs. No legally cognizable error on which a reversal of the appealed judgment could possibly [\*\*36] be based appears

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anywhere in the record, in Connell's briefs, or in the oral argument. Indeed, if ever there were a case in which a grant of JNOV was necessary and compelled, it is this case. The appeal is frivolous.

Connell was informed, on docketing the present appeal, of our views as expressed in *Asberry v. U.S. Postal Service*, 692 F.2d 1378 (1982). In the face of that notice, Connell elected to proceed with the appeal.

#### DECISION

The grant of JNOV is affirmed. The declaratory judgment that the '199 patent is invalid is modified to exclude claim 2 from its effect. The Order of March 4, 1983 is vacated and the question of costs at trial is re-

manded. Under the provisions of *Rule 38, Fed. R. App. P.*, and 28 U.S.C. § 1912, Sears is awarded double its costs on this appeal. In addition, Connell is ordered to pay the sum of \$500 to Sears. Though strongly inclined to hold appellate counsel jointly and severally liable with Connell for the payment to Sears, the court has resolved doubt against that inclination for the sole reason that, a favorable jury verdict having been obtained, the recognized deference due jury verdicts appears to have exerted undue influence on the election [\*\*37] to appeal.

AFFIRMED IN PART, MODIFIED IN PART,  
VACATED AND REMANDED IN PART.



## Intellectual Property Library

Source: USPQ, 2d Series (1986 - Present) > U.S. Court of Appeals, Federal Circuit > In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990)

### **16 USPQ2d 1430**

#### **In re Mills**

#### **U.S. Court of Appeals Federal Circuit**

No. 90-1184

Decided October 9, 1990

916 F2d 680

#### **Headnotes**

#### **PATENTS**

##### **[1] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)**

Apparatus which produces aerated cementitious composition by driving output pump for its mixing chamber at capacity greater than feed rate of ingredients into mixing chamber, and thereby drawing air into composition, is not obvious in view of prior patent for mixing apparatus, even though device of prior patent provides for regulation of flow rate into mixing chamber, since patent contains no suggestion or motivation for overdriving output pump so as to entrain air in mixed ingredients.

##### **[2] Patentability/Validity - Anticipation - In general (► 115.0701)**

##### **Patentability/Validity - Obviousness - Relevant prior art - In general (► 115.0903.01)**

Board of Patent Appeals and Interferences erred by requiring applicant to show that prior art reference lacked functional characteristics of claimed device, since even though such requirement would be proper for rejection based on lack of novelty, it is not pertinent whether prior art device possesses claimed invention's functional characteristics if, as here, application was rejected on basis of obviousness and reference does not describe or suggest claimed invention's structure.

#### **Case History and Disposition**

**Page 1431**

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Peter S. Mills, serial no. 891,374, continuation of serial no. 607-805, filed May 4, 1984. From decision upholding examiner's rejection of claims 6-9 and 11-14, applicant appeals. Reversed.

#### **Attorneys**

James C. Wray, McLean, Va, for appellant.

Muriel E. Crawford, assistant solicitor (Fred E. McKelvey, solicitor, with her on brief), for appellee.

#### **Judge**

Before Miller, senior circuit judge, and Mayer and Lourie, circuit judges.

## Opinion Text

### Opinion By:

Lourie, J.

This appeal is from the November 2, 1989, decision of the United States Patent and Trademark Office Board of Patent Appeals and Interferences (Board), Appeal No. 88-0141, affirming the examiner's rejection, under 35 U.S.C. §103, of claims 6-9 and 11-14 in Mills' application Serial No. 891,374, a continuation of Serial No. 607-805, filed May 4, 1984, entitled "Methods of and Apparatus for Producing Aerated Cementitious Compounds." The remainder of the claims (1-5, 10, and 15) have all been cancelled. We reverse.

### I

#### BACKGROUND

##### A. *The Invention*

Mills' claimed invention is an apparatus for producing aerated cementitious compositions. Claim 6 is the broadest claim:

6. Apparatus for producing an aerated cementitious composition, comprising  
a mixing chamber being open to atmosphere and containing mixing means,  
feed means for feeding ingredients comprising cement, foaming agent and liquid to  
the mixing chamber,  
mixing means for mixing ingredients fed to the mixing chamber, pump means for  
pumping the mixed ingredients to a desired site and having a pump inlet connected to  
an outlet of the mixing chamber,  
drive motor means connected through gearbox means providing a pumping capacity  
of the pump means greater than the feed rate of the ingredients to the mixing  
chamber provided by the feed means, such that in operation air is drawn into the  
mixing chamber, and entrained in the mixed ingredients.

The essence of Mills' invention is the machine's ability to aerate a cementitious composition by driving the output pump at a capacity greater than the feed rate, thereby drawing air into the composition. This aeration produces a composition with substantially lower density than standard cementitious composition mixing ingredients.

##### B. *The Reference*

The sole reference upon which the Board relied in affirming the examiner's rejection was Mathis et al. U.S. Patent 4,117,547 (Mathis).<sup>1</sup> Mathis discloses a mixing chamber which is open to the atmosphere and which contains a mixing means. Two feed means for feeding ingredients in the mixing chamber are provided. The first feed means may consist of a screw conveyer and the second, a flow metering device such as an adjustable valve. A pump means pumps the mixture from the mixing chamber to a desired site and a drive motor means is connected to mixing means and pump means. A separate motor drives the feed means.

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<sup>1</sup> The examiner rejected the claims at issue under 35 U.S.C. §103 as being unpatentable not only over Mathis but also in view of Gibson et al. U.S. Patent 2,717,770. However, the Board affirmed the examiner's rejection of claims 6-9 and 11-14 based solely on the Mathis reference. With regard to Gibson the Board stated:

We view the teachings of Gibson at best as being merely confirmatory of the fact that aerated mixtures can be produced by machines in which a pump means operates upon a mixing chamber at a greater rate than the ingredients are fed thereunto so that air is drawn into the mixing chamber and entrained in the mixed ingredients.

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App. 2.

A control system exists to arrest the feed means so as not to overfill the mixing chamber. This system comprises a level detector in the mixing chamber, which signals the feed means to close when the mixing chamber stores the predetermined maximum permissible quantity of material.

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### C. The Rejection

The Board *affirmed* the examiner's Section 103 rejection of claims 6-9 and 11-14, "finding correspondence in the Mathis reference for all of the subject matter recited in the appellants' claims. ..." With regard to Mills' claim language relating to aerating the mixture, the Board stated: "[i]n our opinion, the differences between claim 6 and the Mathis machine ... lie solely in the functional language of the claim." The Board further found that Mathis teaches the use of separate input and output motors in order to permit the various mixing means and pumps to operate at different rates, and that Mathis "contemplates a situation wherein the rate of the outlet pump would be greater than the inlet pumps...." The Board concluded on this point: "[w]e are of the opinion that the Mathis machine is capable of being operated in such a fashion as to cause [the output] pump 18 to draw air into the mixing chamber 17 so that it is entrained in the mixture."

The Board also agreed with Mills' contention that Mathis is not directed to the problem of producing aerated cementitious material, but noted that Mills is not claiming a method, but an apparatus, and all of Mills' apparatus structure is present in the Mathis machine.

## II

### DISCUSSION

All of the rejected claims are apparatus claims. The Board found "correspondence in the Mathis reference for all of the subject matter recited in appellants' claims" and that "[t]he Mathis machine discloses all of the structure set forth in claim 1" (a method claim not before us). It asserts that the use of such a mechanism would have been obvious and that the differences between claim 6 and the Mathis machine lie solely in the functional language of the claim, the preamble merely stating an intended use for the machine. This language suggests a lack of novelty rejection under 35 U.S.C. §102, rather than an obviousness rejection. However, no Section 102 rejection has been made or is before us. What is before us is a rejection for obviousness, and we must decide whether the Board erred in that rejection.

We note first that nonobviousness is a question of law to be determined from the facts. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir. 1983). We review the Board's determination of obviousness, based on the scope and content of the Mathis reference and the differences between the Mathis reference and the Mills claims, for correctness or error. *In re Carleton*, 599 F.2d 1021 1024 n.14, 202 USPQ 165 , 169 n.14 (CCPA 1979).

[ 1 ] After reviewing the record, the arguments in the briefs, and the Mathis reference, we conclude that Mathis would not have rendered the claimed invention obvious. The closest Mathis comes to suggesting Mills' claimed apparatus is at column 3, lines 42-47, which states

he rate at which the inlet 2b receives a solid constituent depends on the speed of the feed screw 4. Such speed can be regulated by a prime mover 6 which includes a variable-speed transmission.

This brief reference contains no suggestion of "pump means and the feed means providing a pumping capacity of the pump means greater than the feed rate of ingredients to the mixing chamber provided by the feed means, such that in operation air is drawn into the mixing chamber, and air entrained in the mixed ingredients," as provided for in Mills' claim 6. While Mathis' apparatus may be capable of being *modified* to run the way Mills' apparatus is claimed, there must be a suggestion or motivation in the reference to do so. See *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir. 1984) ("The mere

fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification."). We see no such suggestion. The apparatus claimed by Mills is different from that of Mathis, since the fact that motor 6 of Mathis (the feed means) can be run at a variable speed does not require that motor 20 (connected to the pump) be run at a lesser speed "such that in operation air is drawn into the mixing chamber and air entrained in the mixed ingredients."

[ 2 ] The Board found that the difference between the claimed subject matter and the prior art resided solely in functional language and that appellant had to show that the prior art device lacked the functional characteristics of the claimed device, citing *In re Lutke*, 441 F.2d 660, 169 USPQ 563 (CCPA 1971). *Lutke*, however, dealt with a rejection for lack of novelty, in which case it was proper to require that a prior art reference cited as anticipating a claimed invention be shown to lack the characteristics of the claimed invention. That proof would in fact negate the assertion that the claimed invention was described in the prior art. We are here, however, facing an obvious

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ness issue. It is not pertinent whether the prior art device possesses the functional characteristics of the claimed invention if the reference does not describe or suggest its structure. That is the case here. Given the facts before us, we hold that the Board was in error in affirming the examiner's rejection of claims 6-9 and 11-13 as obvious in view of Mathis, and we therefore reverse the Board.

REVERSED

- End of Case -

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ISSN 1526-8535

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LEXSEE 730 F.2D 1440

RCA CORP., Appellant, v. APPLIED DIGITAL DATA SYSTEMS, INC., HA-ZELTINE CORP., and LEAR SIEGLER, INC., Appellees; LEAR SIEGLER, INC., Appellee/Cross-Appellant, v. RCA CORP., Appellant/Cross-Appellee

Appeal Nos. 83-782, 83-827

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

*730 F.2d 1440; 1984 U.S. App. LEXIS 14873; 221 U.S.P.Q. (BNA) 385*

March 20, 1984

**PRIOR HISTORY:** [\*\*1] Appealed from: U.S. District Court of Delaware

**DISPOSITION:** Appeal No. 83-782: REVERSED-IN-PART, AFFIRMED-IN-PART, AND REMANDED

Appeal No. 83-827: DISMISSED AS MOOT

**COUNSEL:** William J. Gilbreth, of New York, New York, argued for Appellant.

John Farley, of New York, New York, was on the brief for appellant RCA Corporation. Also on the brief was A. Russinoff.

Dana M. Raymond, of New York, New York, argued for appellee Hazeltine Corporation. With him on the brief were James J. Maune.

Charles W. Bradley, of New York, New York, argued, for appellee Applied Digital Data System. With him on the brief were Steven D. Glazer and J. T. Cavender.

Edwin L. Hartz, of Pasadena, California, argued for appellee Lear Siegler, Inc. With him on the brief was Stephen D. Natcher and Leo J. Young.

John E. Kidd, of New York, New York, and Keith E. Mullenger, J. David Ellett, Jr., Stephen J. Harbulak, Michael J. Cronin and Paul W. Hemminger were on the brief for Amicus Curiae, International Telephone and Telegraph Corporation.

**JUDGES:** Markey, Chief Judge, Kashiwa, and Nies, Circuit Judges. Kashiwa, Circuit Judge, dissenting.

**OPINION BY:** NIES

**OPINION**

[\*1442] NIES, Circuit Judge.

Appeal No. 83-782 [\*\*2] is from the final judgment of the United States District Court for the District of Delaware (Stapleton, J.) holding U.S. Patent No. 3,345,458 to Cole et al. (the "Cole" patent) invalid as anticipated under 35 U.S.C. § 102.<sup>1</sup>

<sup>1</sup> Reported at 558 F. Supp. 937, 217 USPQ 421 (D.Del. 1983).

Appellant RCA Corp., the owner of the subject patent, sued its former licensees, Hazeltine Corp. and Applied Digital Data Systems, Inc., for patent infringement. Lear Siegler, Inc., filed a declaratory judgment action in California to have the Cole patent declared invalid. The California suit was consolidated with proceedings before the Delaware court. These parties are collectively identified as HLA in this opinion.

The principal issue in Appeal No. 83-782 is whether the district court correctly found that claims 1, 2, and 3 of RCA's patent, covering a digital video character generator, are anticipated by the disclosure in the "Dirks" patents. We reverse the holding of invalidity in view of Dirks alone.

HLA asserts [\*\*3] that the district court erred in failing to hold the Cole claims invalid for obviousness under 35 U.S.C. § 103 in view of a number of prior art references. We affirm the district court's holding that these references would not have rendered the subject

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invention obvious. The case is remanded for consideration, if appropriate, of the counts which were not tried.

Appeal No. 83-827, in which Lear Siegler seeks reversal of the part of the judgment denying it a refund of royalties, is dismissed as moot.

Our jurisdiction over these appeals is provided by 28 U.S.C. § 1295(a)(1).

I

The Cole patent discloses a system for decoding digital symbol codes representing a message and converting them into video control signals for display of the message on a television screen.

A picture is ordinarily formed on a television set by an electron beam which illuminates various points on the screen or cathode ray tube (CRT) of the television as it scans across the screen. The beam scans one horizontal line at a time, starting with the line at the top of the screen and moving sequentially down the screen. This pattern of scan is referred to as a television raster scan. By means of a digital [\*\*4] video signal to appropriately control the points at which the beam illuminates the screen during its scan, the beam can be used to form a message or image. Since the beam traverses the entire screen in a fraction of a second (the "refresh" rate), the movement of the beam is not noticeable.

The district court opinion sets out in detail a description of the Cole patent specification and the pertinent prior art devices and should be consulted for a thorough discourse on the technology involved.

The Cole device is designed to operate with a standard television monitor. In Cole, each character is formed slice by slice, in a character space on the screen consisting of a matrix of dots. Since a number of characters are represented across the screen, the beam traces the top slice of each of the characters in a row of character spaces as it traverses the initial scan line, then proceeds to trace the second slice of each of the characters in the next scan line, and so on.

As the beam tracing the television raster moves across the screen in a scan line, the binary codes for each of the characters to [\*1443] be written in a row across the screen are sequentially provided to a "digital-to-video [\*\*5] generator." Vertical and horizontal sync pulses from a television sync generator are used to drive the television monitor and to provide the digital-to-video generator with information identifying the scan line (vertical) position of the beam and the instantaneous dot (horizontal) position of the beam on that line. Based on this information, the digital-to-video generator decodes the binary character codes into a character pattern of 1's and 0's which, when applied to the television monitor,

are transformed to a display of "on" and "off" dots, respectively. This direct translation of character codes into television video display signals, without any intermediate storage, is commonly referred to as "real time" or "on the fly" operation.

Claims 1 through 3 of the Cole patent, the claims in suit, are reproduced below:

1. A display system for generating character patterns for display on a display device that exhibits a television raster-scan pattern, each character pattern being displayed in one character space,

means responsive to a certain character code for applying to a certain selected lead an output signal having a duration substantially equal to the scanning time in [\*\*6] said scan-line direction through one character space,

means for generating scan-line select counts in synchronism with the scan-lines of said raster, each scan-line count having a duration substantially equal to that of a raster scan-line,

means for generating position counts which occur successively during a scan along a scan-line through a character space, and means for causing said output signal appearing on said selected lead, said scan-line counts and said position counts to supply to said display device a selected character pattern.

2. In a system for displaying a message comprising certain character patterns on a display device that exhibits a raster scan-line pattern, wherein each different character pattern is manifested by a digitally coded data signal corresponding thereto, the improvement comprising generating means responsive to the data signal forming said message applied thereto for digitally generating a video signal for use in displaying said message on said display device, and means for applying said data signals forming said message to said generating means.

3. The improvement defined in claim [2], wherein said generating means includes [\*\*7] first means for producing as said video signal a signal which selectively has either a first level or a second level for the entire duration of each re-

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spective one of successive elemental time intervals all of which have the same pre-determined duration, the duration of each television raster scan line being an integral multiple of said predetermined duration, and second means coupled to said first means for selecting which of said first and second levels, respectively, exists during each respective one of said successive elemental time intervals in accordance with the data signals forming said message.

The emphasized portions are the key to our decision.

## II

As an initial matter, we note that it is incumbent on a district court to indicate on whom the burden of persuasion was placed and what quantum of proof was required to establish disputed facts. An error in either respect may require reversal. In this case, the answers to these questions are difficult to discern. Clearly, however, an error of law was made in one important aspect of this matter. The statutory presumption of validity imposes the burden of persuasion on one who attacks the validity of a patent. 35 [\*\*8] U.S.C. § 282. In this case the district court applied the view of some circuits that, where art more relevant than that considered by the examiner is made of record, the presumption of validity is destroyed. This court has squarely rejected that view. *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1566, [\*1444] 220 USPQ 97, 100 (Fed. Cir. 1983); *SSIH Equipment S.A. v. U.S. Int'l Trade Com'n*, 718 F.2d 365, 375, 218 USPQ 678, 687 (Fed. Cir. 1983).

Attention is directed to the recent opinion of Judge Rich in *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, slip op. at 12-16 (Fed. Cir. 1984), for a comprehensive discussion of the statutory presumption and its effect. In sum, the position of this court is that the burden of persuasion on invalidity must, under the statute, remain at all times on the party asserting invalidity, although that burden may be carried more easily by evidence consisting of more pertinent prior art than that considered by the examiner. *Id.* Further, the facts establishing anticipation and/or obviousness must be proven by clear and convincing evidence. *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, [\*\*9] slip op. at 23-24 (Fed. Cir. 1984).

## III

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760,

772, 218 USPQ 781, 789 (Fed. Cir. 1983). Furthermore, with an element expressed in terms of a means plus function, "absent structure [in a prior art reference] which is capable of performing the functional limitation of the 'means,' [the prior art reference] does not meet the claim." *In re Matt*, 557 F.2d 266, 269, 194 USPQ 305, 307 (CCPA 1977).

The district court found that the Cole claims in suit read on a system disclosed in German, French, and British patents issued to Dirks between 1948 and 1957, none of which were considered by the examiner during the prosecution of the Cole patent application. The district court agreed with HLA's assertion that "The Dirks system . . . is the Cole system implemented in 1940's technology, and, since the Cole claims are drawn to cover all digital systems generically, as opposed to a new implementation, they are anticipated by [the] foreign Dirks' patents."

The Dirks patents [\*\*10] disclose a video display system in which character codes, stored on a rotating magnetic medium, are repeatedly translated upon repeated rotations of the magnetic medium. During the first revolution, the stored character codes are successively translated to form the video pulse train for the first slice of each character on a character row. On the second revolution, the second slice of each character is translated, and so on. The Dirks system includes drive circuitry that causes the CRT beam to scan across and down the screen in a TV raster scan pattern in synchronism with the translation of the character codes.<sup>2</sup>

2 The disclosure of this circuitry in Dirks is sketchy at best. RCA points to its unequivocal and detailed expert's testimony that Dirks is inoperable, and to the failure of HLA to adequately counter this evidence. In view of our disposition of the case on other grounds, it is unnecessary to decide this issue raised again on appeal. We assume Dirks is operable.

The digital-to-video translator [\*\*11] of Dirks includes pre-wired core matrices for each character to be represented, a stepping switch which moves from position to position in accordance with the scan line that the CRT beam is traversing, and magnetic yokes which move in unison across each of their respective matrices, the position of the yokes corresponding to the dot position of the beam as the drive circuitry causes the beam to scan across a character space.

In an appendix to the district court opinion, each of the Cole claims is set out with a disclosure from the Dirks British patent indicated as corresponding thereto.<sup>3</sup> Without any analysis in its opinion, [\*1445] the district court found that "while the implementation of the system

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is quite different in Dirks than in Cole, a comparison of the Cole claims with the Dirks disclosure reveals that the former describes the latter precisely." This finding is clearly erroneous.

3 We note that the appendix is taken from HLA's post-trial brief. During the trial, no testimony or other evidence was presented by HLA showing how each element of the claims could be read on the Dirks reference. It appears that the court placed the burden on RCA to establish the validity of its claims over Dirks (since Dirks had not been considered by the PTO), rather than on HLA to prove by clear and convincing evidence that each element of the claim was anticipated by the reference. Because of the statutory presumption, a court is required to assume novelty and then "must be satisfied . . . that the party challenging validity has carried its burden of overcoming the presumption." *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1567, 220 USPQ 97, 100 (Fed. Cir. 1983).

[\*\*12] Claim 1 of the Cole invention contains four means-plus-function elements: (1) "means responsive to a certain character code," (2) "means for generating scan-line select counts," (3) "means for generating position counts," and (4) "means for [causing (1), (2), and (3) to] supply to said display device a selected character pattern." We need consider only the third means clause to negate Dirks as an anticipating reference.

The third means of Cole is defined as "means for generating position counts which occur successively during a scan along a scan-line through a character space." The yokes of Dirks do not meet the limitation of this means, since they do not function in substantially the same way as a position count generating means.<sup>4</sup> The yokes of Dirks function to scan the coil matrices, magnetically coupling the coils to secondary windings. As the yokes move from position to position, stepping across the coil matrices, they act as a switch completing successive circuits and thereby form a series of on or off dots across a character space. The yokes do not keep track of the number of any counts. In fact no counts occur in Dirks. Most importantly, the yokes do not generate [\*\*13] position counts as specifically required in claim 1. That the position of the yokes corresponds to the position of the beam across a character space is irrelevant. The claim does not encompass all means for tracking the horizontal position of the beam across a character space.<sup>5</sup>

4 Contrary to the dissent, a different result would not follow from application of the doctrine of equivalents under *Tate Eng'g Inc. v. United*

*States*, 477 F.2d 1336, 1342, 201 Ct. Cl. 711, 175 USPQ 115, 119 (1973), which requires *inter alia* that such equivalent element "must function in substantially the same way to produce substantially the same result." The yokes of Dirks do not meet that test.

5 The dissent's reliance on the lack of precise implementation disclosed in the Cole specification for each element of the system is misdirected as a reason for finding anticipation. The dissent appears to endorse the district court's view that RCA has patented "a system concept" which produces an end result. It is hornbook law that abstractions, i.e., concepts, are not patentable subject matter. Under this view of the patent, with which we do not agree, the claims would be invalid under 35 U.S.C. § 101 or § 112.

Anticipation is determined by comparison of the reference with the claims. The claims here define the invention in terms of several specific "means-plus-function" elements. The limitations which must be met by an anticipatory reference are those set forth in each statement of function. *In re Mott*, 557 F.2d 266, 269, 194 USPQ 305, 307 (CCPA 1977). Such a limitation cannot be met by an element in a reference that performs a different function, even though it may be part of a device embodying the same general overall concept.

[\*\*14] Moreover, it is apparent that the position count means provides an *input* to the fourth means of claim 1. In contrast, the yokes of Dirks serve to couple the output of the coil matrices to secondary windings, inducing a voltage which is applied to the amplifier, thus creating a dot signal to the CRT. The yokes thus effectively serve as a selective *output* of the coil matrices as part of the Dirks' character generator.<sup>6</sup>

6 The fourth means of claim 1 (which corresponds to the digital-to-video generator 32 in the Cole specification) supplies a "selected character pattern" to the display device in response to signals generated by each of the first three means.

7 The dissent incorrectly attributes to RCA's expert certain "testimony" referring to the yokes as an "input." The quotation is actually a statement by opposing counsel "roughly" summarizing the witness's testimony on a previous day.

With regard to this last distinction, appellees contend that the position count [\*1446] means claimed [\*\*15] in Cole contains no limitation as an "input." However, as the specification makes clear,<sup>8</sup> Cole's position count means could only function as an input; Cole's invention would not operate, nor would it make sense for

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one to attempt to operate it, with the position count means functioning as a selective output in the manner disclosed by Dirks. We thus find no anticipation of claim 1.

8 Column 11, lines 44-46: "The five position counts are fed individually and in sequence to the input terminals 50 through 54 [of digital-to-video generator 32]."

Turning to claim 2, again Dirks fails to disclose all elements of the claim. Specifically, Dirks does not disclose any type of digital generating means as required by the limitation "generating means . . . for *digitally generating* a video signal." (Emphasis added.) While the Dirks system produces a digital video signal (i.e., a signal that is either "on" or "off") for transmission to a TV raster scan display device, that signal is not *digitally generated* [\*\*16] (i.e., produced by digital components). Resort to the specification of Cole confirms the above interpretation. The words "*digitally generating*" means the generator must be digital, not merely that the generator produces digital signals.

The digital-to-video generator of the Cole device includes a digital diode matrix decoder and a digital circuit array of three-input AND gates. In contrast, Dirks utilizes a crossing field system consisting of windings on inductively excitable bodies, the windings of each body being differently connected according to the corresponding figure to be represented. While the Dirks system produces a digital output signal, it does so in an analog fashion. Dirks has no digital generator, an element which is necessary to make the reference an anticipation.

Since claim 3 of the Cole patent is dependent upon claim 2, which is not anticipated, claim 3 cannot be anticipated.

HLA asks us to hold that the Cole claims, if not anticipated by Dirks, would have been obvious from Dirks. This assertion of obviousness from Dirks, admittedly not developed below as a separate issue from anticipation, is set forth here merely as a conclusory statement to its anticipation [\*\*17] argument. HLA fails to point to anything in the record, either evidence or argument, directed to the issue of obviousness of the Cole invention over Dirks alone. Given the failure of HLA to even argue this issue in its post-trial brief, the district court cannot be faulted for failing to apply the *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S. Ct. 684, 15 L. Ed. 2d 545, 148 USPQ 459, 467 (1966), analysis to Dirks alone. Contrary to the view of the dissent, HLA is not entitled to a remand to prosecute its attack on the patent piecemeal.

Obviousness from Dirks would follow, ipso facto, if Dirks anticipates. *In re Kalm*, 378 F.2d 959, 962, 54

C.C.P.A. 1466, 154 USPQ 10, 12 (1967), (anticipation stated as being the "epitome of obviousness"). Apart from that basis, which we reject, the obviousness from Dirks is not a conclusion to which we are inescapably led. The change from rotating magnetic splines (the yokes of Dirks) to a means for generating position counts (claimed in Cole) is not a mere substitution of a digital for an analog component.

In light of the above, we conclude that HLA has failed to sustain its burden of proving that the Dirks reference renders the Cole [\*\*18] invention obvious.

9 In a brief footnote, the trial court did rule that the subject invention, if not anticipated by Dirks, would have been obvious from Dirks and other prior art references showing "deflection waveforms." Since the type of waveform is not a limitation in the claims, this conclusion is in error.

#### IV

In resolving the issue concerning obviousness under 35 U.S.C. § 103, the district court primarily focused on three prior art patents: Evans et al., U.S. Patent No. 3,017,625; Jones et al., U.S. Patent No. 2,987,715; and Gordon et al., U.S. Patent [\*1447] No. 2,920,312. HLA argues in this connection that these references are sufficient in themselves to show obviousness and that Dirks adds any additional necessary teachings.

Evans discloses a system in which a monoscope character generator translates digital character codes to video signals for a standard television monitor. A monoscope is an analog translator, commonly used in the 1950's, which translates a character code into a pulse [\*\*19] train with pulses of varying duration. The pulse train can be supplied to the CRT of a television, for example, to generate characters in sequential locations.

In the Evans system, digital timing circuits are provided for producing row counts and column counts which reflect the position of the scanning beam on the television screen. The counts are used to access a memory storing the digital character codes to be displayed. The character codes are supplied from the memory to the monoscope translator, and then to the television, without intermediate storage, "in synchronism with the scanning of the television beam.

10 Intermediate storage, i.e. the storage of translated video bits, though undesirable from a memory standpoint, was required in prior analog type character generators due to the high speed of video. The elimination of intermediate storage allows the Evans system, like the Cole system, to operate "on the fly."

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The Jones and Gordon patents disclose digital dot matrix character generators [\*\*20] for use in displaying characters on CRT's with a mini raster scan pattern. In a mini raster scan system, a message is written on the television screen one complete character at a time. Each character code is translated as it is received from the source into appropriate CRT beam intensity and positioning control signals. The character generator circuitry generates on/off signals corresponding to a pattern of dots forming the character, while the CRT beam traces horizontally through each character completely, one slice at a time, before going on to the next character.

Both the Jones and Gordon patents discuss the advantages of their dot matrix character generators over monoscopes. However, as their systems do not convert the character shape information to a full line scan sequence format, special deflection circuitry is required to control the position of the CRT beam. Thus, unlike Evans and Cole, the Jones and Gordon systems are incompatible with unmodified standard television sets.

The district court summarized the differences between the Cole invention and the Evans, Jones, and Gordon references as follows:

Cole, like Evans, translates digitally coded information [\*\*21] for display, without intermediate storage, in a TV raster scan pattern, but it accomplishes the translation with a digital character generator, rather than a monoscope . . . Jones and Gordon teach digital character generators much like that . . . of Cole. They do so, however, in the context of mini raster scan systems which present character-at-a-time patterns and they do not confront the problem of converting the character shape information to full scan line sequence.

The district court set the level of ordinary skill in the art as that of a "graduate engineer . . . with substantial research and development experience in the display field."

Having properly evaluated the indicia of the test set forth in *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467, the district court concluded that it would not have been obvious to one of ordinary skill in the art to combine the "on the fly," full line character generator aspects of Evans with the digital character generator aspects of either Jones or Gordon to form the Cole invention.

Judge Stapleton stated:

While with the benefit of hindsight there appears to be no reason why the concepts of Gordon and Jones [\*\*22] could not be used together with those of Evans, I find no suggestion in any of these references, [\*1448] or anywhere else in the prior art, that they could or should be so used.

Judge Stapleton found the evidence presented insufficient to suggest that an artisan of ordinary skill at the time the invention was made would have perceived the feasibility of substituting a digital character generator for the monoscope in Evans, particularly in view of various differences in timing and circuitry between the Evans system and the Jones and Gordon systems.

Judge Stapleton also based his conclusion of non-obviousness on various secondary considerations present in the case, including the failure by others "to see what Cole . . . saw," and the commercial acquiescence of competitors, evidenced by RCA's extensive licensing of the invention.

We find no error in the district court's thorough and sound analysis following the tenets set forth in *Graham v. John Deere*. The only error of the court was in its failure to start with a presumption that the patent was valid, an error in HLA's favor.

As a final matter, HLA attempts to fault the district court for failing to consider [\*\*23] Dirks in the above analysis. Particularly, appellees assert that Dirks provides "an express suggestion of using a digital character generator in a TV-raster scan display." At oral argument counsel for HLA admitted that Dirks was not asserted in this manner before the district court. Moreover, in view of our conclusion that Dirks discloses no digital generator, this argument is rejected.

## V

For the foregoing reasons, we hold that the Cole patent has not been proved invalid. We, therefore, need not rule on the cross-appeal by Lear Siegler for return of royalties, since the issue is rendered moot under our decision.

The decision of the district court holding U.S. Patent No. 3,345,458 invalid for anticipation (or obviousness) in view of Dirks is therefore *reversed*, and the holding that the patent was not otherwise proved invalid for obviousness is *affirmed*. The case is *remanded* for further proceedings consistent with this opinion.

Appeal No. 83-782: REVERSED-IN-PART, AFFIRMED-IN-PART, AND REMANDED

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Appeal No. 83-827: DISMISSED AS MOOT

DISSENT BY: KASHIWA

DISSENT

KASHIWA, Circuit Judge, dissenting.

I respectfully dissent.

The majority reversed the district court's holding [\*\*24] on anticipation and affirmed the district court's holding regarding nonobviousness. I disagree with the majority on both issues.

*Anticipation*

On the question of anticipation, the district court stated:

The Dirks system \* \* \* is the Cole system implemented in 1940's digital technology, and, since the Cole claims are drawn to cover all digital systems generically, as opposed to a new implementation, they are anticipated by these foreign Dirks' patents. [558 F. Supp. at 945, 217 USPQ at 426.]

\* \* \*

Thus, while the claims in suit must be read in the context of the specifications, they may not be read as limited to the implementation which they disclose. [558 F. Supp. at 945, 217 USPQ at 426.]

\* \* \*

The Cole invention was not a specific device; it was a system concept for direct production of digital video bits from coded data and was operable when appropriately implemented by those skilled in the art \* \* \*. The Dirks patents disclosed the same concept of converting coded data directly into pulse trains representing the appropriate characters, timed and arranged by character slices for display in a television type raster scan pattern. Like Cole, the Dirks [\*\*25] concept was operable when properly implemented [\*1449] by those skilled in the art. [558 F. Supp. at 950, 217 USPQ at 429.]

The issue of anticipation, under 35 U.S.C. § 102, is an issue of fact which is reviewable on appeal under the "clearly erroneous" standard of Rule 52(a), Fed. R. Civ.

*P. Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983). Thus, a reversal can be predicated only upon a "definite and firm conviction that a mistake has been committed." *United States v. United States Gypsum Co.*, 333 U.S. 364, 395, 68 S. Ct. 525, 92 L. Ed. 746 (1948). I believe the district court's holding on anticipation is completely supported by the record and by the extensive and detailed findings in its opinion.

As found by the district court, the Cole specification disclosed a system for computer generated digital data and did not disclose any specific structure for implementing the system. The Cole specification disclosed the system solely in terms of the functions to be performed. Thus, I disagree with the majority's holding that the district court erroneously equated the yokes of Dirks to the position counts means of Cole.

[\*\*26] The district court's finding that Cole's position counts means was anticipated by Dirks is supported by the evidence. Since Cole's drawings disclosed the invention in functional block diagrams and his specification was neither explicit nor limited as to the contents of these blocks, the position counts means and the yokes were equivalents of one another. In *Tate Engineering, Inc. v. United States*, 477 F.2d 1336, 1342, 175 USPQ 115, 119 (1973), the Court of Claims stated: "To anticipate, a prior art reference must disclose each and every element of a claimed combination, or its equivalents, and the element must function in substantially the same way to produce substantially the same result." (Emphasis added.) Since the components of the Dirks system are of a 1940's vintage and those of the Cole system are not specified, the elemental blocks corresponding to the claimed elements in Cole are equivalents of the components of Dirks.

The majority's reliance on *Kalman, supra*, is without merit because in that case equivalency was not at issue. In the present case, equivalency is a major consideration which was raised at trial and in this appeal and it must be dealt with [\*\*27] in this appeal. Otherwise, it would be erroneous and contrary to *Tate Engineering*. Since *Kalman* did not overrule *Tate Engineering*, *Tate Engineering* must be followed unless overruled en banc. *Tate Engineering* was a per curiam opinion by seven judges of the then United States Court of Claims, six of whom are still active on this court, including the writer of this dissent. Majority's summary overruling of *Tate Engineering* is contrary to this court's basic rules of decision making as adopted in *South Corp. v. United States*, 690 F.2d 1368, 215 USPQ 657 (Fed. Cir. 1983).<sup>1</sup> Similarly, majority's reliance on *In re Matt*, 557 F.2d 266, 194 USPQ 305 (CCPA 1977), is inapposite since the anticipatory reference, Dirks, discloses a structure, the yokes, that is

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capable of performing the functional limitation claimed in Cole.

1 The holdings of the U.S. Court of Claims and of the U.S. Court of Customs and Patent Appeals ("CCPA") were adopted as precedent of this court. *South Corp.*, 690 F.2d at 1370, 215 USPQ at 658.

It is interesting to note that both the Federal Circuit and the CCPA had considered the issue of strict identity between an invention and anticipatory prior art. This issue is related, if not the same, as the equivalency issue enunciated in *Tate Engineering*. See *In re Smith*, 714 F.2d 1127, 1137 n. 13, 218 USPQ 976, 985 n. 13 (Fed. Cir. 1983); *In re Foster*, 343 F.2d 980, 52 C.C.P.A. 1808, 145 USPQ 166 (1965), cert. denied, 383 U.S. 966, 86 S. Ct. 1270, 16 L. Ed. 2d 307 (1966). See generally I. D. Dunner, J. Gambrell, M. Adelman & C. Lipsey, PATENT LAW PERSPECTIVES 2-30 (2d ed. 1984).

[\*\*28] The district court's anticipation finding is also buttressed by the fact that the two systems are functionally identical. Both systems generate dot-position counts during a scan of the beam through a character space, and apply them to the column elements of the translator matrix. In Cole, they are generated by unspecified components [\*1450] in a timing and control unit and applied to column conductors 55 to 59 of the digital-to-video generator. In Dirks, dot-position counts are generated by yokes 71<0> to 71<9> and applied to the column cores such as cores 0 to 9 in matrix 50. Both systems count off positions at the respective matrix columns and cause a pulse or no-pulse to be applied serially to the CRT as the CRT beam scans the successive dot positions across the character space. In the Dirks system, the position of each yoke 71 tracks, and indicates the count of, the dot position of the scan, and performs the same sequential energization function as the Cole position counts. In this regard, the district court found:

The magnetic yokes 71<0> to 71<9> all move in unison, to scan the respective matrices 50 to 59, the successive dot positions of each matrix being [\*\*29] scanned as the beam scans across a character space on the screen.

\* \* \*

As the yoke 71<0> then scans the matrix rows 50<0> to 50<9>, in synchronism with the beam scan of positions 0 to 9 across a character space, with switch 46 in its leftmost position, the top slice of the

"0" will appear as bright dots at positions 3, 4, 5 and 6 across the character space.  
[558 F. Supp. at 947, 217 USPQ at 427.]

The district court's finding is further supported by evidence in the record. For example, Mr. Seligsohn, the RCA patent attorney who prepared most of the Cole claims and participated in the licensing of the Cole patent, testified that the term "position counts" merely signifies that the video signal must be a serial string of on/off pulses for the successive positions across a character space. This capability is clearly present in both the Dirks and Cole systems. In this regard, Mr. Seligsohn testified:

It is my understanding that if you are going to produce a video signal for use on a television raster scan where \* \* \* there is an electron beam, a single electron beam essentially, a one point that is moving, that you must apply a serial signal to that \* \* \* [\*\*30] because the beam has to be turned on and off at the proper point when that electron beam is at that point.

So now you are suggesting that somehow you can get that without position counts, which are the serial on and off positions.

Now, I don't see that you can do that \* \* \* I say that if you are going to do it this way, then you have got to have position pulses in a serial form at the output.

I next disagree with the majority that Dirks cannot be an anticipatory reference since the yokes served as outputs of the matrices and not as inputs as required by Cole's claim 1. In essence, the majority believes that the position counts means must be an input to a character generator. This configuration, however, is not supported by the claims of Cole. In the Cole claims, there is neither a recitation of a character generator nor an indication of the exact relationship of position counts vis-a-vis the inputs of a character generator. Cole's claim 1 recites only (in element 4) that the position counts contribute to the supply of a video signal to the display device. More important, however, is that the configuration disclosed in Dirks amply supports the district court's [\*\*31] finding that the yokes are inputs. Each matrix's output signal to the screen is the result of the combined action of three signals -- the character code, the scan-line count, and the position count. In operation, the primary windings of each matrix are energized by the character code and the

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scan-line count signals, respectively. After the closure of the matrix's core by the position count signal of a yoke 71, the secondary winding of the matrix produces the output signal. Thus, yoke 71 clearly serves as an input. Professor Ward, an expert witness in behalf of RCA, testified that "whether the screen [at] each point is bright or not bright, is dependent upon three inputs in the Dirks system, one being the character input to one of the matrices, the other being the scan-line input, and the other being the position of the yoke [*i.e.*, position [\*1451] count] along the matrix." (Emphasis added.)

Last, the majority held that Dirks failed to disclose digitally generated signals as required by Cole's claim 2. The district court, however, stated:

RCA and its expert read the word "digital" more narrowly than did artisans of ordinary skill in the art in the early [\*32] 60's.

The character generator of the Dirks system can produce only on/off signals, for each successive pulse position of the video pulse train. There is no value significance to any voltage derived from a Dirks core matrix until the voltage reaches a level to produce a pulse at the output of amplifier 72 in Figure 2a. Anything above that level produces an output pulse; anything below it does not. \*\*\*

This is purely digital operation. [558 F. Supp. at 949, 217 USPQ at 428-29.]

I believe the district court's finding in relation to anticipation was not clearly erroneous.

#### *Obviousness*

Assuming *arguendo* that the district court's ruling on anticipation was incorrect, I would vacate the obviousness holding and remand to the district court in light of the fact that the district court's determination on this issue was flawed. From the district court's opinion, it is difficult to discern whether the district judge considered the Dirks patent in his obviousness determination. With the exception of two footnote references to the Dirks patent, the district judge's obviousness determination was based on an analysis of the Evans, Jones, and Gordon patents.

Contrary [\*33] to the majority's statement that there was "no error in the district court's thorough and sound analysis following the tenets set forth in *Graham* \* \* \*", I believe that the district court's factfinding regard-

ing the "differences" criterion set forth in *Graham* was clearly erroneous.

Where, as here, the obviousness of an invention is at issue, the Supreme Court has clearly mandated factfindings on each of the three factors stated in *Graham*. A district court must make such factfinding "in such detail and exactness as the nature of the case permits \* \* \* on which the ultimate conclusion \* \* \* can rationally be predicated." *Kelley v. Everglades Drainage District*, 319 U.S. 415, 420, 63 S. Ct. 1141, 87 L. Ed. 1485 (1943); see *United States v. Morow*, 182 F.2d 986 (D.C. Cir. 1950) (findings were not sufficiently comprehensive to warrant affirming the district court's judgment). These factfindings are necessary "to disclose to the reviewing court the steps by which the trial court reached its ultimate conclusion \* \* \*." *Denofre v. Transportation Insurance Rating Bureau*, 532 F.2d 43, 45 (7th Cir. 1976). See generally *Golf City, Inc. v. Wilson Sporting Goods Co.* [\*34], 555 F.2d 426 (7th Cir. 1977). Generally, a reversal and a remand are warranted when the district court's factfindings are ambiguous, contradictory, incomplete, or insufficient to establish a satisfactory basis for a decision. *The E. A. Packer*, 140 U.S. 360, 11 S. Ct. 794, 35 L. Ed. 453 (1891). In particular, it is reversible error when factfindings fail to provide an appellate court with a clear understanding of the basis of the district court's obviousness determination. See *Golf City*, 555 F.2d at 434; *United Shoe Machinery Corp. v. Kamborian*, 160 F.2d 461, 465, 73 USPQ 1, 5 (1st Cir. 1947).

Although the district court recognized that appellees relied on Dirks as well as the other references in their obviousness argument, it failed to take Dirks into consideration in its analysis.<sup>2</sup> Instead, the district court focused on the Evans, Jones and Gordon patents, and only mentioned Dirks in two footnotes. In his discussion captioned "Comparison of Cole With the Prior Art And The Obviousness," 558 F. Supp. at 952, 217 USPQ at 431, the district judge stated:

[\*1452] The primary Section 103 issue<sup>15</sup> presented by the parties is whether it would have been obvious [\*35] to one of ordinary skill in the art in October of 1963 \* \* \* to combine Jones or Gordon with Evans in such a way as to produce the concept claimed in Cole. While the fact that the Examiner apparently did not consider a prior art patent disclosing a digital character generator deprives the Cole patent of its presumption of validity, I nevertheless conclude that Cole is not obvious based on Evans in light of Jones or Gordon.

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2 The district judge stated:

In support of their obviousness argument, HLA rely not only on Dirks but also upon Jones, et al., Gordon, et al. and Evans, et al. [Footnotes omitted.] [558 F. Supp. at 951, 217 USPQ at 430]

15 As explained in an earlier footnote, I conclude that Cole, if not anticipated by Dirks, is obvious from Dirks in light of Brown et al. and others. See " , supra. [558 F. Supp. at 952, 217 USPQ at 431.]

6 Footnote 6 merely states:

The use of both sawtooth and staircase (or stepping) waveforms for vertical and horizontal deflection in CRTs was common prior to 1960, as evidenced by the Brown and Gordon patents. \* \* \* It was a matter of designers' choice. Thus, if Dirks is distinguishable on the basis of its stepping in a vertical direction, Cole was nevertheless obvious from the prior art and invalid under 35 U.S.C. § 103. [558 F. Supp. at 948, 217 USPQ at 428.]

This was the extent of the district judge's obviousness analysis that [\*\*36] included a mention of Dirks.

The excerpts indicate that it is not clear whether the district judge relied on Dirks in his obviousness analysis.

<sup>3</sup> While the text speaks of combining Evans, Jones and Gordon, footnote 15 states that Cole was obvious in light of Dirks and Brown. The district judge seemed to have either ignored Dirks in the obviousness analysis or believed that an anticipatory reference such as Dirks need not or could not be included in such analysis. The factfindings fail to disclose to us the steps by which the district judge reached his obviousness conclusion. See *Kelley, supra*; *Morow, supra*. It is confusing as to whether he relied on or ignored Dirks in the factfindings regarding the "differences" between Cole and the prior art references. See [\*\*37] *Packer, supra*. Failure to explicitly include Dirks in factfindings regarding the "differences" so as to provide an appellate court with a clear understanding of the basis of the district court's obviousness determination is reversible error. See *Golf City, supra*; *United Shoe, supra*.

3 Contrary to majority's belief that appellees alone contributed to the district court's confusion, RCA also contributed to that confusion. In a footnote on page 39 of its Post-Trial Brief, RCA stated:

As noted earlier, the inoperativeness of the foreign Dirks patents removes them from possible consideration as anticipatory references, \* \* \* and from consideration as to the obviousness of the Cole patent \* \* \*.

In addition, RCA, on page 18 of the same Post-Trial Brief, acknowledged HLA's arguments at trial regarding the obviousness of the Cole invention in light of Dirks.



# Intellectual Property Library

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## 18 USPQ2d 1089

### In re Young

### U.S. Court of Appeals Federal Circuit

No. 90-1368

Decided March 5, 1991

927 F2d 588

## Headnotes

### PATENTS

#### [1] Patentability/Validity - Obviousness - Relevant prior art - In general (► 115.0903.01)

Apparently conflicting prior art references must, in making obviousness determination, each be weighed for their power to suggest solutions to artisan of ordinary skill, and all disclosures in prior art must be considered to extent that they are in analogous fields of endeavor and thus would have been considered by person of ordinary skill in field of invention; in weighing suggestive power of each reference, degree to which one reference might accurately discredit another must be considered.

#### [2] Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (► 115.0903.03)

Applicant's claims for method of generating seismic pulse in water by use of at least three air guns disposed at critical distance from each other are obvious in view of prior patent which expressly teaches exact spacing set forth as limitation in each of applicant's claims, even though additional reference purporting to test different methods of pulse generation suggests avoidance of spacing taught in prior patent, since reference did not accurately test prior patent according to its teachings, particularly those regarding spacing, and therefore artisan of ordinary skill would have afforded reference little weight.

## Case History and Disposition

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Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of D. Raymond Young and John C. Wride (method and apparatus for generating an acoustic pulse in a body of water). From decision of Board of Patent Appeals and Interferences upholding final rejection of all claims, applicants appeal. Affirmed.

## Attorneys

Richard F. Phillips, Jr., Houston, Texas, for appellants.

Lee E. Barrett, associate solicitor (Fred E. McKelvey, solicitor, with him on brief), Arlington, Va., for appellee Patent and Trademark Office.

## Judge

Before Newman, Lourie, and Rader, circuit judges.

## Opinion Text

### Opinion By:

Rader, J.

Raymond Young and his co-inventor John Wride (collectively Young) appeal from the October 31, 1989 and April 18, 1990 decisions of the Board of Patent Appeals and Interferences (Board). These decisions *affirmed* the final rejection of all claims in their application. The Board held Young's claimed invention obvious under 35 U.S.C. §103. This court affirms.

## BACKGROUND

Young's application discloses a method and apparatus for generating an acoustic pulse in water. Acoustic pulse technology facilitates offshore seismic exploration. The acoustic pulse generates a large gas bubble in the ocean above geological formations on the ocean floor. The rapid expansion and collapse of the gas bubble create a shock wave in the water. The shock wave propagates through the water into the formations below the ocean bed. As the shock wave passes downward through these formations, each interface between adjoining earth strata reflects a portion of the shock wave. These reflections move upward through the ocean. Hydrophones at the ocean's surface can monitor these reflections. From these monitored reflections, geologists can generate a "seismic section" map which shows the configuration of strata in the ocean bed.

Today's most common sources of seismic shock waves are air guns. These air guns feature a chamber for storing and releasing on command highly compressed air. A high-pressure hose charges the gun with compressed air for rapid firing during a seismic survey.

Acoustic pulse technology suffers from problems with bubble oscillation. Upon release of the compressed air, the bubble undergoes a rapid initial expansion and collapse. Several more expansions and collapses follow the initial collapse, but with diminishing amplitude. Each of these expansion-collapse events creates an additional shock wave. The geological strata reflect each of these additional shock waves. The multiple reflections, in turn, blur the resolution of the seismic section. Most blurring comes from the first oscillation after the initial bubble collapse.

Acoustic pulse technology uses a "primary-to-bubble ratio" to measure susceptibility to oscillation. This ratio compares the shock wave intensity of the initial expansion-collapse to the intensity of the first oscillation. A high ratio means the secondary shock waves are less likely to blur the seismic section.

Young tries to raise the primary-to-bubble ratio above prior art air gun sources by reducing the amplitude of the first oscillation. Young seeks this result by spacing at least three air guns in a characteristic array. The array separates the guns from each other by a critical distance. The distance, D, is at least 1.2 times greater than R, but less than or equal to twice R. R is the maximum radius of the initial air bubble from each gun. \* With this spacing, the bubbles from each gun intersect before any single bubble reaches its maximum radius. This intersection dampens the overall oscillation. Young's independent claims each include a spacing limitation within this range.

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\* Mathematically, D is defined by  $1.2 R \leq D \leq 2.0 R$ .

Independent claim 1 is illustrative: A method of producing a seismic pulse in a body of water, including the steps of:

(a) disposing in the water a set of at least three air guns, each adapted to produce in the water a gas bubble having maximum radius substantially equal to the quantity R, where the guns are disposed at depths such that each produces, when fired, a bubble of maximum radius R, and the guns are disposed such that each gun is separated from each of the nearest guns thereto in the set by a critical distance, D, where D is substantially equal to  $V 2R$ ; and

(b) firing the air guns substantially simultaneously to produce a seismic pulse in the water.

Young's dependent claims define the number of the guns or their placement relative to each other or to the ocean surface.

The examiner rejected each of the claims as obvious under 35 U.S.C. §103 in light of five prior art references. The examiner relied primarily on U.S. Patent No. 2,619,186 to Carlisle (the "Carlisle patent" or "Carlisle") to reject Young's claims. Carlisle is the only reference cited by the examiner or Board which suggests the air gun spacing in Young's claims.

Young contested the Board's and the examiner's consideration of Carlisle. Young argued that Carlisle concerns reducing bubble oscillation for chemical explosives, not air guns. Young also argued that an article by Knudsen published six years after Carlisle in the journal *Geophysics* expressly discredits the teachings of Carlisle. W. Knudsen, *Elimination of Secondary Pressure Pulses in Offshore Exploration (A Model Study)*, 23 *Geophysics* No. 3 at 440 (July 1958) (Knudsen). Therefore, Young contended, a person of ordinary skill in the seismic exploration art would not have considered Carlisle when developing an improved seismic array.

The Board rejected Young's arguments. The Board held that the examiner appropriately applied Carlisle notwithstanding the teachings of Knudsen. On appeal, Young asserts as error only the propriety of applying Carlisle as a reference in light of Knudsen's allegedly contrary teachings.

## DISCUSSION

This court must decide whether the Board properly affirmed the examiner's rejection over Carlisle. Young has not challenged the other references cited in the examiner's rejection. Further, Young has not argued the

merits of any particular claim apart from the others. Therefore, all claims stand or fall together with representative independent claim 1. See *In re Kaslow*, 707 F.2d 1366, 1376, 217 USPQ 1089, 1096 (Fed.Cir. 1983).

The Carlisle patent - "Seismic Exploration Method" - issued on November 25, 1952. Carlisle concerns minimizing bubble oscillation for chemical explosives used in marine seismic exploration. Carlisle controls bubble oscillation by spacing seismic sources to achieve a reduction of the secondary pressure pulse. Carlisle specifically teaches spacing the seismic sources close enough to allow the bubbles to intersect before reaching their maximum radius. Carlisle spaces the bubble centers closer than two maximum bubble radii, or less than "2.0 R" in Young's notation. Carlisle, col. 3, lines 57-60. Carlisle explains:

he secondary energy normally available from these sources is dissipated by their mutual intersection and tends to eliminate the secondary seismic impulses created when the walls of the bubbles collapse.

*Id.* at lines 60-64. Thus, Carlisle expressly teaches the spacing limitation in each of Young's claims.

Notwithstanding Carlisle's teachings, Young argues that the Knudsen article discredits Carlisle. Knudsen describes a series of tests which evaluated four proposed techniques for suppressing bubble oscillation. Carlisle was one of the four. Knudsen's article opined that Carlisle yields no appreciable improvement in bubble oscillation suppression. The effective teaching of the Knudsen/Carlisle combination, Young argues, suggests avoidance of the spacing suggested in Carlisle. Therefore, Young would have this court conclude that his use of Carlisle's spacing would not have been obvious.

Young misunderstands the effect that Knudsen has on Carlisle. The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Even if tending to discredit Carlisle, Knudsen cannot remove Carlisle from the prior art. Patents are part of the literature of the art and are relevant for all they contain. *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968). For example, in *In re Etter*, 756 F.2d 852, 859, 225 USPQ 1, 6 (Fed.Cir.), cert. denied, 474 U.S. 828 (1985), a reference which disclosed obsolete technology remained in the prior art. This court considered the reference for what it disclosed in relation to the claimed invention.

[ 1 ] When prior art contains apparently conflicting references, the Board must weigh each reference for its power to suggest solutions to an artisan of ordinary skill. The Board must consider all disclosures of the prior art, *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976), to the extent that the references are, as here, in analogous fields of endeavor and thus would have been considered by a person of ordinary skill in the field of the invention. The Board, in weighing the suggestive power of each reference, must consider the degree to which one reference might accurately discredit another.

[ 2 ] As prior art, the Board correctly weighed Carlisle to determine the patentability of Young's claims. Carlisle expressly teaches both the method and the advantages

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of Young's claimed spacing. In fact, Carlisle expressly teaches the exact spacing set out as a limitation in Young's claims. Thus, the Board correctly attributed significant weight to Carlisle in its obviousness determination.

In determining what weight to accord to Carlisle as prior art, the Board also appropriately considered Knudsen's discrediting effect. The Board determined that Knudsen did not convincingly discredit Carlisle. Therefore, the Board appropriately concluded that Knudsen would not have led one skilled in the art to reject Carlisle.

Knudsen did not test Carlisle according to its teachings. For instance, Knudsen did not use an explosive charge in modeling Carlisle. Rather, Knudsen tried to simulate Carlisle with a capacitive electrical discharge in a barrel of oil.

Knudsen did not replicate Carlisle's teachings on spacing. Knudsen tried to model Carlisle by separating the seismic sources by one, two and three bubble radii. Knudsen at 42. At the maximum spacing of three bubble radii, the bubbles will not intersect at all. Carlisle specifically requires spacing to permit bubble intersection. Carlisle, col. 4, lines 47-52. At a spacing of one bubble radius, the two bubbles coalesced into one before the initial collapse. Knudsen at 45. If just one bubble is present, the bubble will oscillate as if no second seismic source was present. Carlisle specifically requires spacing to prevent the formation of one bubble. Carlisle, col. 4, lines 34-37. Finally, at the two bubble radii spacing in Knudsen, the bubbles will just barely intersect. Carlisle requires that the bubbles intersect before each bubble achieves its maximum radius. Carlisle, col. 3, lines 58-60. In sum, Knudsen did not duplicate or appropriately model Carlisle's spacing.

Knudsen's conclusion that Carlisle would "not be effective in eliminating the secondary pressure pulse" also directly contradicts data contained in Knudsen. The knudsen data point for the two-radial horizontal bubble

spacing, although not a completely accurate model of Carlisle, shows a 30% reduction of the secondary pressure pulse. Knudsen at 45, Table 4. This data point represents the only point where Knudsen approximates the spacing shown in Carlisle. At that point, Knudsen confirmed Carlisle's teachings.

The Board found that Knudsen "did not test the Carlisle technique under conditions which are directly comparable to the Carlisle disclosure." Weighing the discrepancies between the Knudsen model and Carlisle's teachings, as well as Knudsen's tendency to confirm Carlisle where the model approximated Carlisle, the Board concluded: "we do not agree that Knudsen discredits Carlisle."

Because Knudsen did not accurately test Carlisle, an artisan of ordinary skill would not have dismissed Carlisle in light of Knudsen as a whole. It is far more likely that the skilled artisan would have afforded little weight to Knudsen itself. The Board did not err in relying on Carlisle and discounting Knudsen.

## **CONCLUSION**

Knudsen is not so credible or persuasive of a contrary teaching that it would have deterred the skilled artisan from using the teachings of Carlisle. The examiner's use of Carlisle in his rejection of Young's claims is not clearly erroneous. The Board's decision affirming the examiner's rejection is therefore *AFFIRMED*.

- End of Case -

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ISSN 1526-8535

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**APPENDIX C**

**RELATED PROCEEDINGS**

None.